MICHIGAN TEXTS IN ECONOMICS

PRINCIPLES OF ECONOMICS

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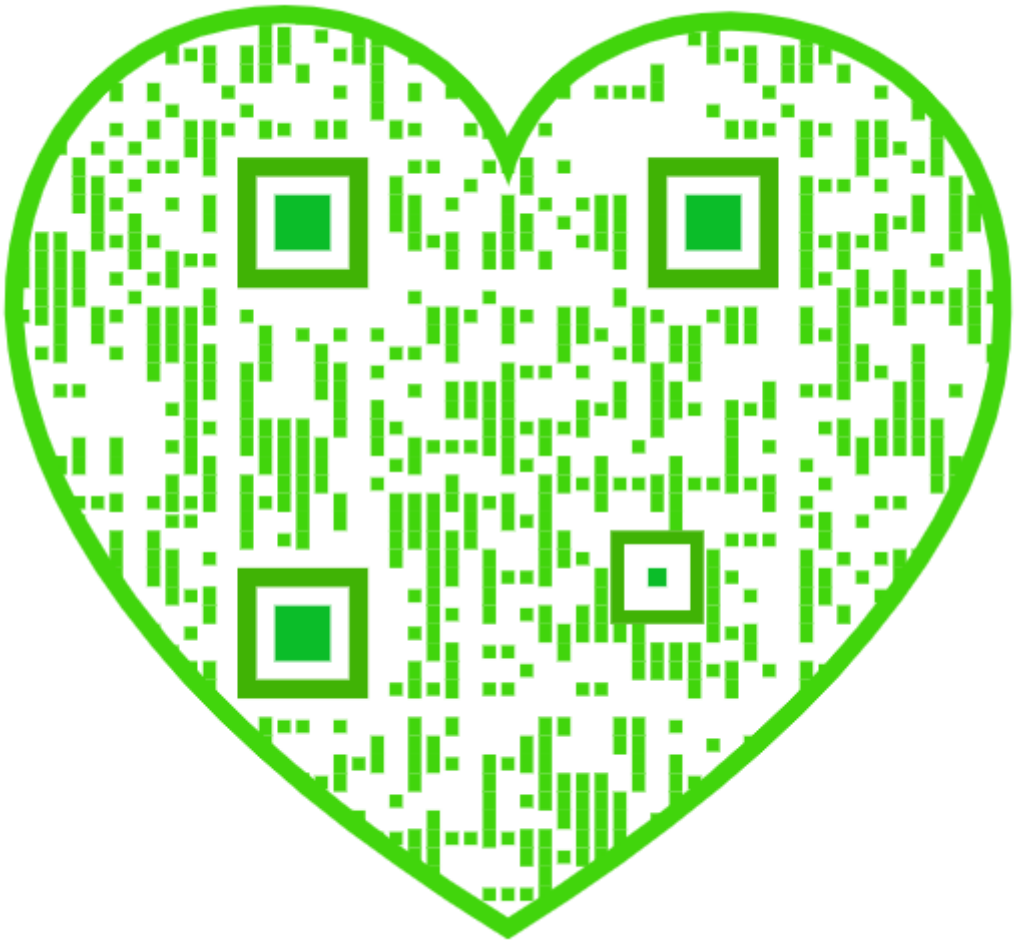

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PRINCIPLES OF ECONOMICS

BY
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FIFTH EDITION

PREPARED BY

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PREFACE TO THE FIFTH EDITION

The principal changes in this edition are the following: dividing the chapters so as to make 37 instead of 16 as in the fourth edition; elaborating two or three chapters which were little more than lecture notes; abridging two or three discussions which belonged rather to monograph literature; diminished use of formal principles; increased use of concrete illustrations; and a general softening of the style. Disproportion and inconsistency have been diminished, but not yet removed. The most significant single change is the starting of the Critique of the Present Order with Distribution rather than Production,—a change which naturally led to a complete reorganization of this discussion.

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CHAPTER I

INTRODUCTORY

One of the most characteristic marks of a sentient being like man is to have **wants,**—we might almost say that to feel wants and secure their satisfaction is the very essence of living. Now, the great majority of these wants depend for their satisfaction on our disposal over certain **material objects** or **conditions**—material goods. Hunger can be satisfied only by material food, the need for shelter only by material houses, the desire for pleasure-riding only by material vehicles. There are, of course, some wants, such as the craving for affection from our fellows, or the religious longings, which depend on psychological, or at any rate, some sort of immaterial, conditions. But these are comparatively few; and even they are very closely associated with material things.

But not only is the satisfaction of our wants dependent on material goods, it is further true that most of these material goods are *obtainable only in exchange for something,*—some other good relinquished or labor or other form of sacrifice supplied. In ordinary language they are said to cost something; the economist expresses the same fact by saying that they have **exchange value**—they command a price. Such goods are designated generically **wealth.** They are also called economic goods in contrast with free goods, such as air and sunlight, which are commonly obtainable without any cost.

Having such important relations to our lives as it does, wealth naturally absorbs a large amount of our time, thought, and effort. We are occupied in producing it, in consuming it, or in passing it in exchange from one person to another almost constantly. Further, a considerable part of our energies are given to preserving it from loss or deterioration. And again, our sentiments toward wealth are notable facts of our

psychic experience; we prize it, attach a significance to it, have a conscious realization of its importance to us,—a fact expressed by saying that wealth has individual or subjective value. *All these and many other facts, happenings, relations, connected with wealth or economic goods, we call* **economic phenomena.** These phenomena constitute the subject matter of Political Economy or Economics, just as another set of phenomena constitute the subject matter of Chemistry, and another set the subject matter of Physics.

The preceding paragraph brought us to something like a definition of economic phenomena. That definition, however, would need careful limitation. *Not all the facts, relations, and happenings connected with wealth can properly be included under economic phenomena.* On the contrary, much the larger part of them belong, in accepted usage, to other sciences. For example, wheat is of course wealth and gives rise to many phenomena which are strictly economic. But it also gives rise to phenomena which are physical, chemical, botanical, and agricultural. In short, *things are economic only as looked at in one special narrow way.* In the very strictest sense, *they are economic only when viewed as possessing value.*

However, such strict limitation of our field as this is impracticable. First, there are certain very general phases of the technological side of wealth which would naturally be treated not in such industrial sciences as agriculture, mining, or manufacture, but only in some science *having a more general character;* and, up to the present, political economy has been this general science. Secondly, a fair knowledge of these technological matters, as viewed from the economic standpoint, is absolutely essential to an intelligent study of the most important of the strictly economic problems. In fact, we shall find it necessary, as the students of other sciences do, to permit ourselves rather a wide latitude in the use of this and other terms. "Economics" will sometimes include almost everything connected with wealth. At other times it will be used

in the very restricted sense indicated above. In still other connections it will have some meaning lying between these extremes.

The foregoing discussion of economic phenomena has brought out the point that things are economic only when looked at in one special way. But, it should be added that there is an economic aspect of many matters which the public generally and even many economists are wont to look on as quite remote from the field of our study. Thus, the ministrations of religion seem very far removed from those things which are usually thought of as wealth, such as bread, meat, or houses. But, in truth, these strongly contrasted things belong in the same class. Bread, meat, and houses have an economic character, not because they satisfy very material, everyday wants, but because in view of all the conditions of the case they *possess value*—have to be paid for. And just so the ministrations of the clergy have an economic character because they have to be paid for. While our science, therefore, has to do with things only on one side, the economic, yet on this one side it has to do with almost everything, be it great or little, high or low.

In the fourth paragraph back, we spoke of economic phenomena as forming the subject matter of Political Economy just as certain other phenomena form the subject matter of Chemistry, and others that of Physics. We perhaps ought to note one point of difference between economic phenomena and the others alluded to. The latter belong to a general group which are strictly natural, in the sense that they are not modified through conditions fixed by men. Economic phenomena, in contrast, belong to a group which are in no small degree artificial; they are influenced by conditions of human origin. Of course all phenomena are natural in the broadest sense of the term. But obviously, some are natural in a fuller and deeper sense than others. Now, many economic relations are among the most truly natural and inevitable that can be formed; many economic phenomena would be just like

those we are familiar with in the same connections, even if we lived like Crusoes or, at the opposite extreme, like a communistic society. But, in contrast with these, not a few economic phenomena would be very different from what they are now, provided that the conditions fixed by men were altered. For example, if legal changes were introduced giving the state ownership of all the land, the amount of wealth enjoyed by many persons would be quite different; if all undertaking of production were legally left to the state, more or less conspicuous changes in price would probably take place; and again, if the laws permitted us to own laborers like beasts of burden, this circumstance would surely modify many economic phenomena. It is plain also that such conditions may be brought about not only by formal legislation but by custom, convention or formal agreements. Thus, a general boycott of manufacturers who employed non-union laborers would be an artificial condition of sufficient significance to influence wages and employment quite seriously.

This discussion of natural and artificial conditions should now focus in a conception which will be of much importance in our future study; I mean the conception of *an economic order, a system or totality of conditions natural, legal, customary, etc., under which economic goods—wealth—are brought into existence, distributed, and consumed.* Many such economic orders might be conceived, though there are only a few principal types. But our chief business is with *the existing economic order,* the one at present dominant. Our task as students of economics is to ascertain the leading facts of this order and the principles or natural laws governing economic phenomena under it.

The preceding will suffice to give the student fairly adequate ideas as to the nature of economic phenomena. It is hardly necessary to remark that these phenomena present problems of great interest and importance. For some of these problems, we shall have to admit, there is not now, and perhaps never will be, any complete solution; but others require

only careful and patient study. This perhaps sounds too optimistic, when we often hear people declare that there are no economic principles, that there is no economic science, that in economic matters we could not make the smallest prediction with any hope of its being fulfilled. But such denials are not to be taken seriously. Any person can, on the spur of the moment, make many predictions in economic matters, and look forward to their fulfillment with perfect assurance.

For example, if there should be a great falling off in wheat production next year, the price would certainly rise. If, by the introduction of new methods, the cost of producing almost any manufactured article were to fall fifty per cent,—monopoly being shut out—the price of such article would also fall. If the price of aluminum should decline fifty per cent., there would doubtless take place a great extension of its use in the arts. If the government should begin to coin freely both gold and silver, putting only sixteen times as much silver into that kind of coin as it does of gold into that kind when on the open market an ounce of gold is worth, say, forty ounces of silver, the silver would surely get the place of standard money while gold would go to a premium and rapidly disappear from circulation. And so one might go on. In short, economic phenomena, like any other phenomena, are governed by natural laws. If the group of phenomena in question are of such a kind that several almost equal forces are interacting, it may be impossible to anticipate the result, just as in complicated natural or physical sciences like physiology or meteorology. But, in other cases when only one or two of the forces in operation are of much significance, it will be comparatively easy to ascertain the probable outcome.

On account of the very great practical significance of economic matters, the student is generally tempted to make immediate and confident application of every bit of economic knowledge which he may acquire. Such procedure is not justified in any science; since, whatever the science one is studying, some time must be spent acquiring those most general

principles the actual working of which, though fundamental, is, after all, much obscured by the operation of more superficial forces. In the case of economic phenomena, the too hasty application of fundamental principles to specific problems is even less justified than elsewhere, because of the great number of economic and non-economic forces, which are simultaneously acting at any given moment and which make the accurate disentangling of causes almost impossible. It is, therefore, quite important that the student should exercise much self-control at this point. In particular, he is urged to suspend final judgment on almost all great practical problems, such as free trade, socialism, trades unionism, etc., till he takes courses subsequent to Course 1, or anyhow till late in that course. This exhortation is the more needed because, in the process of trying to secure a thorough comprehension of principles, it seems necessary to make many applications of those principles to actual problems. If, however, the student will remember that in these applications we are concerned *only with the economic* phase of the problem, while in actual life the problem has many other phases, he will realize that he should attempt to reach a final opinion, not on the whole matter, but only on its economic phase.

As already implied in the foregoing, the course upon which we are just now entering is primarily intended as a foundation for later study. It is, therefore, devoted to a severe discipline upon fundamental principles and their applications. In general, our method of procedure is to introduce the concrete phenomena needing explanation; then to set forth in formal fashion the principle which embodies the explanation; to follow this with adequate illustration and argument; then to finish with illustrative problems the solving of which will ensure that the student really masters the principle involved. We advise that, in preparing the lesson, the student begin by reading the text carefully, though not attempting to master it; that he then undertake to solve the illustrative problems, recurring to the statement and discussion of principles as he

feels the need therefor; and that, finally, he go over the entire discussion once more in order the better to comprehend it as a whole. He can obtain best results from the problems by writing out the solution. In doing this, he should not rest satisfied with categorical answers even when these seem sufficient, but rather take pains to *explain*—give reasons for—the conclusion reached. It is essential above all that he cultivate clearness and precision of statement and, where argument is needed, be careful to include every link of the chain and to put each in its proper place.

Illustrative Problems

1. "In order to be an economic good—wealth—a thing must have utility,—must be capable of satisfying some want." Argue for the truth of this statement.

Answer: The distinguishing mark of an economic good is the fact that it has value. But no one will set value on a thing unless it is capable of satisfying some want of his;—*i. e.*, unless it has utility. Hence to be an economic good, it must have utility.

2. Is air under ordinary conditions wealth?

3. Show that in order to be wealth a thing must be appropriate and transferable.

4. Is the water flowing from a spring by the roadside wealth?

5. Is an amiable disposition wealth? A hundred tons of gold known to be lying on the surface of the moon? A vein of coal existing, but not known to be existing, under a Michigan farm?

6. "If all the whisky, brandy, gin, and other alcoholic drinks in existence were taken out and poured on the ground, there would not be one whit less wealth or value in the world than before the operation." Is that sound?

7. It would cost a good deal of *labor* to cover the walls of the houses on Washtenaw avenue with posters of a circus given two weeks ago. Would the result be wealth? What is the point to be made?

8. "A thing may have value and *not be useful*: *e. g.*, an old stone prized by a collector." Point out the error.

9. When we call a man wealthy we mean that he possesses a relatively large amount of this world's goods. Should we understand this to mean that the possessions of the poor man are not wealth?

CHAPTER II

GENERAL SURVEY OF THE EXISTING ECONOMIC ORDER

In the introduction we developed, among other things, the notion of *an economic order*—a totality of conditions under which economic phenomena take place; and we explained that our study is mainly concerned with the particular economic order now existing,—the phenomena displayed under it and the natural laws governing those phenomena. Our first task, before undertaking a detailed study of the economic order, is to get a general view of it and familiarize ourselves with its most conspicuous features. To this task we shall devote ourselves in the present chapter and the next. The purpose of this chapter can best be attained by associating all our enquiries with the one most dominant feature of the existing order, *Individual Exchange Co-operation.*

Section A. The Nature of Individual Exchange Co-operation

Since the purpose, or the ultimate outcome, of the economic order is the satisfaction of men's wants, let us make men's wants our point of departure in the study of the order. By what kind of process or processes do economic goods present themselves to different individuals ready for consumption?

The general situation in which men find themselves is this. They exist, and by the fact of their existence they have wants which imperatively demand satisfaction. Further, for securing this satisfaction men are themselves entirely responsible; they are confronted daily and hourly with the problem of making a living. To serve their purpose in making a living, they find within themselves a limited capacity for exertion, and they find about them a world of material things which in one way or

another can be drawn upon and utilized. Under these circumstances there are several possible ways in which different individuals might be supplied.

It is easy to imagine an order in which the goods consumed by each individual would be furnished directly by his own efforts. Crusoe on his island contrived the satisfaction of his every want by the labor of his own hands, and it is probable that many hunters and explorers for a time approximate his condition. A pioneer or isolated settler also to a great extent produces the very things which he consumes and consumes nothing but what he himself produces—bakes his own bread and eats it, grinds his own flour and bakes it into bread, raises his own wheat and grinds it into flour. Such an order, where each man provides directly and entirely for the satisfaction of his own wants, may be called an *autonomous economic order.*

1. But, as we all know, the actual system is quite different from that above described. We are not acting in economic matters independently of one another. We are not producing all the things we consume, or consuming all the things we produce. Instead, most of the things we consume are produced by others, aud most of what we produce is consumed by others. In short, the present order is emphatically a *co-operative* one. Co-operation, acting together, pooling in a sense our productive efforts, is the most distinctive fundamental characteristic of the present order.

2. A second special characteristic of our present system is found in the *peculiar way in which our co-operation is brought about.* Ordinarily, in speaking of co-operation, we think of it as being *conscious, organized* co-operation, brought about either by agreement or authority. Thus, people co-operate in getting up a church supper or picnic, through agreement. On the other hand, in the family we have co-operation brought about by the authority of one or both the parents, and in communistic societies—Shakers, Oneida, Amana,—many of which have existed in the United States, we have co-operation effect-

ed by the authority of the community. In contrast with such conscious, organized forms, the co-operation of the present order *results from the spontaneous action of individuals in producing goods wanted by other persons, and exchanging those goods for goods which the others have produced.* That is, the element which effects our co-operation under the present order is *Exchange.* This second feature of the order is brought out by denominating that order one of *Exchange-Co-operation.*

3. A third characteristic of the present order, and one which furnishes an additional reason for denominating it an order of Exchange-Co-operation, is found in the way our co-operation is *regulated.* It is pretty clear that, if we have any co-operation at all, there must be some way of *regulating* that co-operation. We need more of some things than of others. We need certain things so much that it will pay us to have them even at the cost of going without some other things altogether. Unless there is some guiding, directing machinery, we shall be wasting our resources producing the wrong things or the right things in the wrong proportions. Now, in some kinds of co-operation this regulating is done, or would be done, by *authority.* This is the case within the family. How much time the farmer's boy shall put in weeding the garden, how much splitting wood, and how much picking up stones, the farmer determines by authority; and such a system prevails in the main in the communistic societies to which reference has already been made. But, throughout most of the present order, our co-operation is *regulated* by the same machinery of exchange which *effects that co-operation,* and in the same spontaneous way. If too little of anything is produced, prices rise or the market expands, profits increase, and so producers of their own motion increase output; if, on the other hand, too much of anything is produced, prices fall or the market contracts, profits diminish, and so producers of their own motion diminish output. Again, if the output of some commodity during a particular year is exceptionally small, so that consumption all along the line needs to be curtailed, this is usually

accomplished, not by the interposition of the public authorities, but by an automatic rising of price which induces almost every one to cut down consumption of his own motion. So, in these and various other ways, exchange regulates our co-operation.

4. We have seen that the present economic order is one wherein men co-operate and wherein their co-operation is effected and regulated through exchange. The next most prominent characteristic of the order is *individual initiative*. It is quite possible to conceive a system of co-operation which, in part at least, is effected and regulated through exchange, but in which *initiative is left to society as a whole, government*. Thus, under socialism as it is commonly advocated, the state would be the sole farmer, miner, manufacturer, or merchant,—the state alone would *undertake* to produce things, putting all individuals into the position of employees. But it would still enter into exchange relations with these individuals, buying their services in the open market and selling them its products. Further, it very probably would depend on freely determined prices to guide or regulate production in the same way that they do at present. But, while such a system would, like the present, be a system of exchange co-operation, it would differ radically in *leaving all initiative to the state;* whereas, in the present order, initiative is mostly, though not entirely, *the business of the individual,*—persons who have the means and think they see a chance to obtain profits set about producing wheat or iron or chairs or what not. Accordingly, to give something like a complete characterization of the present order in its most general features we have to say that it is a system of *Individual Exchange-Co-operation.*

One point in the foregoing description should perhaps receive special emphasis before we pass on. Our affirmation that the existing order is regulated through exchange may awaken surprise or doubt in some who were unaware that the order is regulated *at all.* Many people have never recognized in exchange the possibilities of a regulating factor; they have as-

sumed that the only such factor that could exist is some kind of *conscious* interference; and, knowing that there is little such interference in our order, they pass to the natural conclusion that our order is almost if not entirely *unregulated*. Indeed, there is nothing more common, even among educated people, than the notion that, save for a slight authoritative interference here and there, the present order is quite without regulation, and therefore exists in a state of chaos or anarchy, governed only by chance. Now, this is surely quite contrary to the facts. Economic actions are *regulated actions*. They are organized and correlated so as to accomplish uniform and regular results. The fact that the regulation is spontaneous, and hence to some extent concealed, does not make it any the less real. It would be impossible, or at any rate inexpedient, to attempt in this place a fuller description of the process by which the regulating actually takes place. But the more specific and detailed argument for it will be supplied as our knowledge of the economic order expands in the progress of this course.

In saying that the economic order is regulated, we do not intend of course to intimate that it is regulated in a manner altogether just and expedient. The time has not come to go into this topic at all fully; but even at this stage so much should be made clear. No one claims that the present system works perfectly, that there are no evils which society ought to try to eliminate. There surely are not a few places where spontaneous regulation fails to attain good results, and it surely is possible that at these points some other form of regulation would do better. But even so, we must still insist that the present order is not chaotic, that it is a regulated and a rationally regulated order, though one in which the process of regulation is automatic.

Illustrative Problems

1. Give some examples of autonomous production from everyday experience.

2. "Robinson Crusoe, on his far-away island, had neither trade nor commerce. Except for the supplies that he recovered

from the wreck of the ship, he obtained his food from the plants that he cultivated and from the wild animals that he killed. His clothing was made from the skins of goats; his table and his chairs were the work of his own hands. Even his shelter was constructed of the stone and wood that he found on the island. If he had more of one product than he needed he could not exchange it for other necessary articles. If provisions, utensils, clothing, tools, or metals were lacking, he could not buy them. He was by turns hunter, fisher, tanner, farmer, miller, baker, blacksmith, and carpenter."

The above is the opening paragraph of a book on Commercial Geography. It seems intended to suggest the significance and importance of commerce by setting forth the disadvantages of isolation such as Crusoe's. Put the gist of the matter in a single sentence.

3. "In the main, industry is organized in a spontaneous way. Men choose such occupations as they like, and when there are too many of them in one group and too few in another, the automatic working of economic forces moves them from the former to the latter." Explain and illustrate the last clause of that sentence.

4. "The great advantage of foreign trade is in furnishing a market for our surplus products which would otherwise go to waste." This surely is only a minor advantage of foreign trade. Why? Give something better.

5. If the potato crop of a communistic society which had no commerce with other communities were to fall off one-half, how would they regulate the consumption of potatoes for the following year? How is it done under the present order?

6. "It will never pay us to import anything which we ourselves can produce." Show that this proposition is erroneous.

Section B. Forms and Forces of Individual Exchange Co-operation

To a very limited extent, our co-operation in the present order is *homogeneous;* we combine to do something which requires that all shall act in the same general way, as when a number of men carry a steel rail. But, generally speaking,

our co-operation is *heterogeneous*. Each person does a different thing from the rest, though the actions of all may be combined and ordered to a common end. But this differentiating the tasks involved in the co-operative process and assigning them to different persons is not something merely occasional or extemporized. The particular task undertaken by each is *habitually undertaken by him;* he regularly performs this task and no other. Now, such a practice is known as *division of labor* or *specialization*. And this specialization, as one of the most important features of our co-operation, should be examined somewhat more specifically.

1. Specialization.

One form of specialization is that wherein each producer is entirely responsible for a complete product. Thus the farmer plants his potatoes, hoes them while they are growing, and finally digs and sorts them into bags, ready for the consumption of his several neighbors; while one of those neighbors, the carpenter, might draw the plans for a house, procure the lumber therefor, and finish the structure complete, ready for the farmer's occupancy.

But, as every one knows, specialization commonly goes much further than this. Practically no one in a highly organized society carries from beginning to end the processes necessary to the production of a finished consumption good. The work of the baker in producing bread is preceded by that of the miller in producing flour and that of the miller in turn by the work of the farmer in producing wheat. So likewise the work of the shoemaker is preceded by that of the tanner, and the work of the tanner by that of the stock raiser. Each commodity, in short, comes to its ultimate consumer as a result of efforts spent upon it by a long series of different producers. In addition, the various members in the original series make use of the products and services of producers in various other series. Thus the cattle raiser avails himself of the wagons, harness and wire fences produced by certain manufacturers.

The tanners again use coal, bark and cloth, and the shoemaker uses thread, bristles, needles and machinery, each of which has been brought to perfection by as many and various independent series of producers.

But in an economic society so highly developed as ours, co-operation and specialization go still further than we have yet indicated. In the case last mentioned we were thinking of industrial units which, though devoted each to producing only a single element in the ultimate product, were yet *undivided* units. It was the stock farm as a whole which we conceived of as raising cattle and the tannery as a whole which we conceived of as preparing hides for leather. But in reality each such industrial unit is divided, there is specialization *within* it. In the tannery which as a whole produces leather, some men attend to the scraping of hides, some to the curing of the hides in the various baths, some to staining, some to finishing, some to keeping books, some to writing letters.

A point with respect to specialization which is much too important to be neglected may naturally be presented in this connection. Specialization is not limited, as may seem to have been implied in the preceding discussion, to human beings. For human beings necessarily use lands, machinery, tools in their work; and *these assisting factors become specialized* just as do the men themselves. Each tool and machine is more and more confined to the performance of one small job; one portion of land is devoted to celery, another to onions, another to citrous fruits, and so on.

But we have not yet brought out the full extent of co-operation under the present order. The specialization thus far considered grows more especially out of the differences in the physical or technical operations to be performed in getting a product ready for consumption. But there is an an even deeper kind of specialization. In speaking of it we shall be anticipating somewhat the contents of a later chapter, but the broad facts can after all be very easily understood. We already had occasion in the last paragraph to mention the fact

that when a man engages in productive operations he does not work alone, but brings to the aid of his labor various factors outside himself, land and materials, tools, machinery, etc. Now, with the development of industrial society under a system of exchange co-operation, it has come about that the labor for productive operations is *furnished* by one person or class of persons, the land by another, the tools, machinery, etc., by another, and the initiative in, or responsibility for production by still a fourth. The people furnishing these different necessary factors may therefore be said to co-operate. Here, manifestly, we have a deeper sort of specialization and co-operation than anything yet considered. For lack of a better term I will designate it as *functional co-operation.*

To summarize this discussion: the present economic system presents itself to us as one wherein we have a vast complex of different industries, mining, stock raising, farming, manufacturing, transporting, etc., each concerned in the production of some commodity at one or another stage of completion, while, within each of these industries, different functional groups of productive agents are co-operating and, while, finally, *this vast industrial complex is brought together, is held together, and is regulated through exchange*—buying and selling. The existing system is thus seen to be one of extraordinay complexity, very confusing to the general public and not a little so to the trained thinker. It is often difficult to isolate the precise function performed by a given business, and people who form hasty conclusions are apt to deny the existence of such a function, to affirm that the business in question plays no legitimate part, so that those who pursue it are mere parasites upon society. We will do well, however, to assume at the outset that every occupation not catering to human vice plays a real and legitimate role in the total conduct of economic affairs, is doing some one of the numberless things necessary to be done if the wants of mankind are to be satisfied in the fullest possible measure.

2. Competition.

We have remarked on some important phases of the specialization which forms so vital an element in this exchange-cooperation of ours. We must now comment on another very important element in the system as at present established, an element which is often thought of as the most characteristic feature of the system. That element is *Competition.*

To begin with, we need to remind ourselves of the human motives at work among men in their specialization which we described in the foregoing pages. Each man, we have seen, specializes in production, and then brings his product to market, where it will be exchanged, and finally consumed by others. But while each man produces things for the ultimate use of others, his real purpose all along is to secure satisfactions for himself. Hence, when he brings his product to exchange, his endeavor will be to give just as little to, and get just as much from those other people as he possibly can. Such an attitude cannot of course be attributed to all men, yet it is common enough to form the basis for a general rule. Further, the person or persons with whom our first man seeks to effect an exchange, are inspired by the same motives as himself. They also have a specialized product to dispose of, and they desire to relinquish as little and obtain as much as circumstances will permit. The two people, therefore, with similar but exactly contrary interests, will enter into a strenuous contest, each to satisfy his own desires at the expense of the other. Put in the language of the market, each tries to sell at as high a price, and to buy at as low a price as he can. Offers are made on both sides and on both sides rejected. New offers are made and argued for, and perhaps accepted conditionally; and finally an agreement is reached and the exchange is ratified. A contest of this kind is what we know as *bargaining.*

But in real life this bargaining is not the whole story of exchange, or even a large part of the story. In our regime of specialization we rarely find one man alone producing and

furnishing to the market any particular product. A man may, indeed, happen to be the only physician in a thousand miles; he may control all or most of the available wheat, either by having grown it or bought it; or a number of men may have gotten together and pooled their holdings so that, practically, their commodity is offered by one individual. But situations of this kind are rare—certainly they do not predominate. In our regime, although men specialize in production, many of them are *supposed to be producing the same things.* They are also supposed to bring their products to market separately and individually. So they all arrive at the market at the same time with the same or similar goods to dispose of.

Observe now, what happens under these conditions. Suppose one man has wheat to sell and wants potatoes. He will naturally try, as we have seen, to get from those who have potatoes as many as he can, while at the same time surrendering only as much wheat as he must. But now he finds himself in company with a dozen or a hundred or a thousand other men with wheat to exchange for potatoes, and all as anxious as himself to give little and obtain much.

Accordingly, what will the thousand men do? Those who are really in earnest about getting rid of their wheat, and those who really want potatoes, will *compete.* Each will try to dispose of his individual product, and at the same time try to acquire the goods which all his fellows alike desire—despite the similar efforts of his fellows. And note that now his main interest necessarily shifts. He no longer deals with an eye single to beating the man on the opposite side of the bargain. He still holds to his old purpose, of course, but his real concern is now not so much with the persons on the other side of the bargain as with those on his own side. His concern is to crowd in ahead of all other wheat sellers, and sell his own wheat and obtain potatoes, in spite of the presence and similar efforts of those other wheat sellers. And he must do this, he must sell the wheat and get the potatoes ahead of his rivals, notwithstanding his fundamental motive and impulse to make

a good bargain with potato sellers. This rivalry with others of a homogeneous group, under the handicap of a bargaining motive, is what we call Competition.

The vital distinction to be made is that between bargaining and competition. Competition is not bargaining. You exchange with a bargainer; with your competitor you do not exchange at all, but rather try to obtain precedence over him in your exchange with the bargainer. Neither is competition motivated by the bargainer's desire to give little and gain much. It is motivated by the desire to dispose of one's own goods and to secure the other goods, without reference to much or little, *in advance of others who are trying to do the same.* The fact that one desires to gain much and give little—the presence of his bargaining impulses—is and can be no other than a hindrance.

But, now that we know what competition really is, let us see what effect it has upon bargaining, and upon the prices that would naturally be established by the bargaining process. If a man offers to exchange his wheat on very high terms, some of his competitors may offer to exchange theirs for less. His desire to sell in spite of his rivals will therefore lead him to forego to a great extent his selfish desires, and to sell for a low price. His desire to *buy* in spite of his rivals will lead him likewise to forego his selfish desires and buy at a high price. In short, he must meet the favorable terms offered by his fellows or else retire from the field—keeping his wheat and going without potatoes. And if he really wants to exchange, he is led to sell for approximately as little as any one is willing to take, and to pay approximately as much as any one is willing to give.

Without attempting to go more deeply into the subject at this point, we now see in a general way that prices in exchange are fixed by competition. Hence if, as maintained in an earlier section, exchange, or exchange prices are the force that regulate the existing economic order, we must now add that the

prices so operative are prices fixed under conditions of competition.

One further point. We laid great emphasis, some time back, on the fact that the existing order was co-operative, in the sense that men help satisfy each other's wants by producing different things and exchanging them. We must now add that in a very real sense competition is at the heart of this co-operation, that the exchange becomes co-operative only by virtue of the fact that it is competitive. Without competition, the selfish motives of bargaining would prevail in all our exchanges. Producing apart with the single purpose of securing their own fullest satisfaction, buyers and sellers would forever be at odds, antagonistic to the highest degree, even to the point of enmity. But competition neutralizes this selfish motive, reduces it to impotence before the intending bargainers ever really come face to face. By an inescapable pressure it compels all those on one side to offer to exchange at moderate terms, and it assures all these the offer of equally moderate terms from the other side. We are thus permitted to satisfy our wants reasonably well—as well as most members of our group; while at the same time we are compelled to satisfy the opposing group reasonably well. In short, through competition, exchange becomes co-operative almost in a moral sense.

But competition, when we look at it closely, shows itself to be an organic part of the co-operative order in yet another way. Every participant in the exchanging process hopes to dispose of his own goods and obtain other goods in spite of the presence of his competitors. But, in order to exchange at all, one must accept as low prices and pay as high prices as his competitors. Now for the individual this necessity may prove to be extremely trying. It often costs one man more to turn out his products than it costs his competitors, and so if he sells as low as they, he may get out of the exchanging process less than he puts into it. And if he continues long doing business on any such principle, he will of course come to ruin.

Now the real difficulty with any individual in this situation is that he has not been able to produce the particular commodity which he brings to exchange as efficiently or as cheaply as his competitors. To save himself, therefore, he will be forced to quit that field of production and go out seeking among other fields for one in which the advantage does not lie so much with his competitors. Only those with independent incomes can choose and indefinitely persist in an occupation which does not produce something they can sell to advantage. In other words, the result of competition, of competitive exchange, is to force each person into that field of productive employment for which he is best fitted. Specialization, as already pointed out, is an essential feature of our co-operative order. Hence, competition, which guides our specialization, which leads us inevitably to specialize in the employment where we can produce most efficiently, which makes our specialization more perfect—is also co-operative. Its final result is the more effective satisfying of human wants as a whole.

The most essential points presented in this chapter regarding the existing economic order, may now be summarized as follows: Individuals produce separately, and on their own initiative, specializing in the production of certain economic goods. These goods they then proceed to exchange for goods produced by others. And the exchanging process, being carried on competitively, results in the fixing of those prices which regulate the economic order, and which make it an order truly co-operative.

Section C. Some Economic Principles Deducible from the General Nature of the Present Order

A notable fact in this stage of general education and enlightenment is the continued acceptance by a great majority of persons of quite erroneous notions with respect to several familiar and not very difficult economic questions. One can hardly run through a current newspaper or popular magazine

without coming upon fallacies which, as the economist looks at it, were fully disposed of by Adam Smith almost a century and a half ago. This prevalence of unsound doctrine is particularly troublesome and dangerous in a country like the United States, because the majority of the people have power to affect the policy of the government in economic matters, and frequently assert that power. Accordingly one of the greatest tasks of the student of Economics is to train himself in the art of detecting the fallacies which lurk in popular beliefs. This task confronts us, too, at the very outset of our course; for some of the most widespread fallacies are concerned with facts already brought out in the foregoing general account of the present economic order. We will, therefore, at once set about formulating principles and applying them to popular errors.

The first generalization from the nature of the present order which we have to lay down is that, generally speaking, each person gains from the increased efficiency of his neighbors. In one way this would seem to follow as an evident corollary from the proposition already set forth, that our economic order is *co-operative*. As long as we co-operate in production, the efficiency of the persons producing all the different commodities will increase; this will swell the total product of the group and so may naturally be expected to bring advantage to all members of the group, those concerned with one commodity as well as those concerned with another. Thus, when the farmer, carpenter and mechanic co-operate—in the sense that each specializes in his own craft and exchanges his product for those of the others—they every one obtain better goods and more goods and goods of a greater variety than they otherwise would. But in real life there is a more difficult problem. Suppose that, after co-operation is established the farmer and the carpenter come to a standstill in the development of their craft, while the mechanic proceeds to acquire an extreme efficiency. It might be argued that, although the aggregate product of the group will surely be increased, this will not necessarily be of

any advantage to the other members of the group, because the increase may all go to the person whose efficiency has risen, the mechanic alone.

The full answering of this objection depends on a knowledge of the principles of price or value which we do not take up till later in our study. Still, it will not be difficult to anticipate that discussion sufficiently to satisfy the student's mind in regard to the general point. (1) If the mechanics learn to make twenty cars a year instead of ten, while farmers and carpenters continue to produce at the same rate as before, then *under free competition* the exchanging rate between autos on the one hand and corn and houses on the other will alter in favor of the latter. For auto-makers, in competition, will offer more and more of their increased supply of cars against a supply of corn and houses that has not increased at all. Accordingly, a certain quantity of corn and houses will buy more automobiles than before. (2) Since by hypothesis no change has taken place among the farmers and carpenters, the exchanging rate among their goods, corn and houses, will not have altered: a certain quantity of one will buy the same quantity of the other as before. (3) Consequently, the farmer or carpenter will find himself able to buy with his own product more automobiles, while buying no less houses or corn. In other words, he will have gained from the increased efficiency of another producer.

It must not be imagined, of course, that the producers whose efficiency increases derive no advantage from it. A man who suddenly runs far ahead of his fellows in efficiency may, before competition can overtake him, reap enormous gains; and the use of secret processes, and the protection of patents may for a brief time prolong this advantage. Besides, even when competition is operating freely, the efficient producer will realize some gains. Each unit of his commodity buys less than before; but he has more units to buy with, and usually this brings to him an increased total of other goods. The point to be emphasized here, however, is that, although the person or the class that shows increased efficiency may gain something by it, the

public also does not fail to gain. The benefits of an improvement do not accrue permanently to the producer alone; they are diffused, they go to the public—and, broadly speaking, to every member of the public.

Formulating the point brought out in the foregoing discussion, we have the following:

Principle. *The present order, being a co-operative one, each person or community tends to gain from an increase in the economic efficiency of other persons or communities with whom or with which said person or community maintains economic relations.*

A second matter on which we need thus early to lay down a formal principle is *the function of trade, exchange.* There is indeed almost no other phase of Economics on which popular opinions go so widely astray. In the minds of a few persons, all trade whatever is *illegitimate;* to a much larger number this is true of at least some kinds of trade; and a majority of persons, probably, believe that trade, if legitimate at all, is surely in any proper sense of the word, *unproductive.* But if the account given in this chapter of the general features of the economic order is sound, all these adverse judgments are of course quite untenable. Trade in general and presumably all kinds of trade are legitimate because they play a vital, necessary role in economic affairs. Exchange is, as we have seen before, of the very essence of our heterogeneous co-operation—it both effects and regulates that co-operation—and the one without the other is unthinkable. The fact may, therefore, be formulated in the following:

Principle. *Under the existing economic system, exchange (trade, commerce) plays an essential part in that it makes possible economic co-operation and specialization—it supplies the process, or system of processes, whereby co-operation is effected and regulated.*

Furthermore, if we understand by the word "productive" that the operation so characterized fulfils a condition essential

to the satisfying of our wants, then trade in some form, certainly, is productive. This proposition so plainly follows from the principle that no argument is needed, and it may merely be stated as:

Corollary 1. *Exchange operations, viewed as processes necessary to consummating our economic co-operation, are productive operations, and those engaged in such operations are producers.*

Another proposition which follows almost as directly from the principle may require some little comment. It concerns the fact that exchange *as a regulator of price* is productive. Many persons who admit that merchantile operations are productive in so far as they are devoted to buying from producers and selling to consumers, would yet be disposed to deny the productivity of these operations in so far as they involve the fixing of prices. But the error of such a denial can readily be seen. Suppose I own an acre of land, and on this land can raise either one hundred bushels of potatoes or one hundred bushels of onions. But suppose the process of exchange has fixed the price of potatoes at $1.50 a bushel, and the price of onions at $1.00 a bushel—then certainly I, in view of my knowledge of these prices, will raise potatoes rather than onions. In other words, the price, *regulated through exchange,* will regulate my economic activities so that the total quantum of values which I produce will be $150.00 instead of $100.00. This idea may be summarized as a corollary.

Corollary 2. *Exchange operations, viewed as processes whereby our co-operation is regulated through price, are productive operations and persons engaged in such operations are producers.*

Illustrative Problems

1. "Give the farmer a parcels post to begin with. Let him send his dozen eggs or his pair of chickens direct to the man who wants to eat them, or at least to the retail merchant. Cut out the commission merchant, the wholesaler, and a few other

of the city parasites that live on the farmer."—New York Evening Journal.

(a) Suppose yourself to be a farmer living in the neighborhood of Ann Arbor, and point out some advantages you would derive from selling your butter to the grocers and your chickens to the meat men rather than to consumers.

(b) Suppose yourself to be a fruit grower in Western Michigan, dependent for your market chiefly on Chicago, and point out some disadvantages which you would suffer if you tried to sell grapes, peaches, etc., by parcels post to the ultimate consumers in Chicago and its vicinity, rather than to commission merchants.

(c) Show that these facts are inconsistent with the notion that commission merchants, wholesalers, *et al.*, are "city parasites."

Note: There is of course much to be said in favor of a parcels post; and it is always possible that the number of middlemen should become needlessly large so that some of them may fairly be viewed as parasites. But such a characterization of the class as a whole is quite illegitimate.

2. "Internal commerce does not increase the wealth of a nation since it only transfers goods from one person to another." Criticize.

3. In the natural course of events it often happens that a country loses some portion or the whole of its market in some particular country. When this happens or is anticipated, public men are apt to speak as if such a result involved almost irremediable disaster. Doubtless it would mean some loss, but by no means the amount which people seem to imagine. Explain precisely what would be the nature of the injury to us, if our foreign trade should fall off by a considerable amount. Suppose our foreign market showed a permanent net shrinkage of 200 millions of dollars per annum would this mean that our yearly income would be 200 millions smaller? If not, just what would it mean?

4. From the Congressional Record for May 17, 1909: "Mr. Aldrich. Assuming that the price fixed by the reports is the correct one, if it costs 10 cents to produce a razor in Germany and 20 cents in the United States, it will require 100 per

cent. duty to equalize the conditions in the two countries . . . And, so far as I am concerned, I shall have no hesitancy in voting for a duty which will equalize the conditions." * * * *

If it was necessary to equalize the conditions, . . . I would vote for 300 per cent. as cheerfully as I would for 50."

To what sort of an economic system would such notions, if logically carried out, inevitably lead?

5. "A first-class illustration of the absurdity and wrong of the present order is furnished by the case of a plumbing firm. Such a firm does little, if anything, more than act as a middleman between the actual plumbers and householders. But it pays the former at the rate of, say, 30 cents an hour for their services, while it charges householders 60 cents an hour for those services. Here you have a plain case. Either the firm underpays the laborers or overcharges the householders; and in either case it gets something which it has no right to. There is no other alternative." Discuss the above.

6. "If the wheat crop of the world should fall off one-half next year, a rise in price would then be of great social advantage, in fact, almost indispensable." Explain.

7. The general account of the existing economic order which has been given in the present chapter furnishes one of the most fundamental objections to the maintenance of a protective tariff, *i.e.*, a tariff intended to hinder our buying goods from other countries. Explain that objection.

CHAPTER III

AUTHORITATIVE CONTROL IN THE EXISTING ECONOMIC ORDER

We have thus far described the present economic order as built up and regulated by the free, spontaneous action of men. This description is, in the main, correct; and it emphasizes the fact which we should first of all fix clearly in mind. There is an economic order of a perfectly definite sort, organized in a highly intricate way, and, in spite of its apparent surface contradictions, tending to supply men's wants with an efficiency truly marvelous to those who have never before reflected upon the fact; and this order, in its most essential features, owes its existence and its regulation to the free action of men pursuing their own personal economic interests.

In saying this, however, we by no means present a complete and accurate picture of the existing order. There never was, and is not now, an economic order spontaneous *purely*. The spontaneous action of men in their economic relations has always been more or less influenced, either in the way of help or hindrance, by authoritative forces outside the men themselves. Sometimes mere public opinion or a general social custom has made itself felt. Sometimes a powerful religious organization has said that men should do thus and so, and has compelled them to do it. But the strongest of all authoritative forces outside the individual, especially in the present age, is the action of organized government. To this aspect of the existing order, we must give something more than passing attention. First, then, we take up those governmental activities which may be looked on as logically essential to the realization of the principle dominant in the present order. Later we will remark on several

kinds of governmental activities which are more or less inconsistent with the central principle of our order, but are, after all, by many authorities thought desirable.

1. Activities Essential to the Realization of the Central Principle of the Present Order

One type of governmental activity vitally essential to the present order insures the possession by a considerable number of persons of the right of **free initiative.** This proposition is immediately deducible from the fundamental character of the present order. That order, we remember, depends on the *initiative,* the spontaneous action, of *the individual* to see that the right things and the right quantities of things are produced; and, at the same time, it expects individuals to exercise this function under conditions of *competition.* Naturally, then, it will be necessary for people generally to possess the right of initiative. Further, since this right might easily be hampered by the voluntary action of other individuals, it is necessary that the state should make special provision to insure its maintenance. The government must, for example, do its utmost to eliminate what is known as *monopoly,*—the **control by one** will of economic activity, especially the production or sale of any kind of goods.

Again, governmental action is vitally needed to insure that individuals shall have the power to get *control of the instruments of industry,* the raw materials, tools, machines, etc., including the services of those human beings who assist in the productive process; for, obviously, production cannot be initiated and carried forward by the spontaneous action of individuals, unless they have this power. Our present economic order, in some of its variations, has allowed full property in *all* these factors to the private individual. At times it has permitted him to own land, materials, tools, and even the human beings who give off productive services. In the present age, as we know, property in human beings is almost universally forbidden; but,

in the other instruments of production, it is almost as universally recognized. This private ownership is not strictly a necessity. The state might own the instruments while the men who initiate and maintain production merely buy from it the services of those instruments; and yet the fundamental principle of our order would be successfully carried out. In any case, however, it would be necessary that individuals should have the power named,—the power to control and dispose of these services—else they certainly could not initiate and guide economic activities.

But, while men must of necessity have a right to control instruments of production, it is possible that the right will be *infringed* by the action of other individuals. Superior force or guile may greatly impair the efficiency of the system approved by the public will. It follows that governmental action is needed to *insure the possession by the individual of these necessary property rights.* Whatever degree of control over the instruments of production we purpose to grant to the individual, that control we must insure to him by governmental action. Similarly, the government should, of course, insure that the man responsible for the production of economic goods shall be secure in his right to the ownership of *those goods after he has produced them.* For other persons might be disposed and able to deprive him of the fruits of his efforts, thus destroying the motive for industry; and this possibility can be shut out only by the action of the government.

Another type of governmental action essential to the conduct of the present order is the authorization and maintenance of *the right of contract.* Individuals must be permitted to make agreements with one another in respect to their economic conduct, and the government must provide for the enforcement of these agreements. This necessity grows out of two facts: (1) Many economic operations require extended periods of time, and (2) In many cases the carrying out of the time-consuming process requires a dependable anticipation of future needs. If a man is building a house, he will need material and labor at

various times during a considerable period in the future; and, for obtaining these, he cannot safely trust to the chance of the moment. To secure something like certainty, he makes contracts in advance. Again, as we all know, one of the chief factors in production, capital, it largely obtained by borrowing from others. And this involves a contract, in that the borrower must agree to return the sum borrowed and pay interest for its use.

But, if it is practically necessary to have a right of contract in carrying out the principle of the existing order, it is also necessary at this point to have some action of the government; for, without governmental interference, the right of contract could not be effectively maintained. Circumstances would always be arising in which it was for the interest of one or the other of the parties to break the contract; and all experience shows that the temptation is too powerful for human nature unless restrained by the strong hand of the law. Our economic system, therefore, requires that the government shall authorize and *enforce contracts.*

Again, it is plain that governmental authority is needed to insure the right of *free exchange.* As we saw in the preceding chapter, one of the most central features of the present order is a type of co-operation effected and regulated through exchange. The existence of a general freedom of exchange is, therefore, an absolute *sine qua non.* But this freedom is always liable to be infringed by the selfish action of other individuals. Dealers themselves are eager to eliminate competition and often try to do so by agreements of a monopolistic character. The necessary freedom of exchange, then, can be insured only by the potent interference of government. The state may conclude that for reasons of a public nature it is, on the whole, undesirable to maintain perfect freedom in every field; but it should insure such freedom for *economic action in general;* and it should see that *no interference* with that freedom is permitted *except what it authorizes.*

2. Activities Designed to Increase Economic Efficiency

We come now to several forms of governmental activity which cannot be described as logically essential in carrying out the fundamental principles of the present order. They are rather interferences with, limitations upon, that principle. They have often been opposed by rigid supporters of the present order, but, in the course of the last century, have notably increased in all fields. Here we note, first those activities which attempt to improve the present order by supplementing individual action with more efficient governmental action. Not a few of this sort have been carried on by government in all ages, so that they are looked on by almost every one as belonging essentially to the governmental sphere, for example, the issue of the money which acts as a medium of exchange, the building of roads, or the making of canals.

Again, from very early times, government has contributed to economic efficiency by granting a form of monopoly known as the *patent right*. Owners of a patent, having the sole right to market the product involved, are able to put upon it a price which secures a profit above the ordinary; and so stimulus is given to discovery and invention. With the same end in view, government often confers bounties or prizes for improvement in productive processes.

Another type of activity contributing to the efficiency of production which has greatly increased in our day, is the conduct of *investigation* into the conditions and methods of procedure necessary to highest technical efficiency. Thus public bureaus are maintained to carry on *research* in biological subjects, like the breeding and care of animals, the improvement of seed, the discovery of better conditions for growth, etc. An activity closely allied to this last is the *dissemination of information* among those engaged in an industry, most conspicuously those engaged in agriculture. Still another consists in providing for technical education and training, through schools of agriculture, mining, manufacture, and commerce.

3. Activities Designed to Alter the Distribution of Property and Income

It has always been recognized that the present system needs to be supplemented by governmental action not only to increase its efficiency, but also to prevent *undesirable consequences* which the free working of the system would inevitably produce. One such consequence is the extreme *inequalities* in respect to the distribution of property and income. In spite of the high efficiency of the system as a whole, many people feel that we cannot rest content until we have ameliorated the inequality resulting from it. And at this point the intervention of government is demanded.

The type of interference in question is sometimes described as *determining the plane of competition.* Competition, as we have seen, is in a sense the central feature of the present order, and it accomplishes extremely valuable results. By all means, therefore, competition should be retained; but at the same time we should try to put it on a higher level, to raise the standards controlling it, to determine, *in the interest of larger social results,* the scope within which it shall act.

Among the various policies used by government to improve the system of distribution, we have the guidance of *taxation* in a way to throw the chief burden on the wealthier classes. In other fields, a particular kind of service is sold to every one at the same price,—the rich man and the poor man pay the same for a loaf of bread or a pound of meat; but the contribution made by rich and poor to the support of government, an institution supplying them with many of the most important services, are very different in amount. Generally, these contributions to public needs are made in accord with the paying capacity of the citizen; and this policy, manifestly, is in effect a re-distribution of the social income.

In speaking above of the attempt to relieve less wealthy people of the tax burden, we had in mind especially that volume of taxes which is *bound* to be levied because it is destined to meet the necessary expenses of government. A sec-

ond method of diminishing inequality also involves the system of taxation, but in a different way. Government undertakes to improve the condition of people of small or moderate means by furnishing certain services and goods either gratuitously or at a price lower than would appear under the operation of free private initiative; and the funds needed to meet the expense for these types of activity, like the ordinary income of government, are raised by taxation, assessed according to wealth; so that the net result is a re-distribution of income favorable to all but the wealthy classes.

The most familiar example of this kind of governmental interference is found in the field of *education*. Poor people lack money to give their children an education; the state undertakes to provide it for them. In respect to the simpler forms of education, this policy dates back a long way; but in our day it has been extended also to the more advanced forms. Intermediate, and even the very highest cultural courses, as also technical or vocational training, are open to all classes, if not gratuitously, at least below cost. The children of the poor, as a result, have opportunities many times greater than they could expect in an order purely spontaneous. Supposing their natural endowment adequate, they may hope to attain the highest professional positions of all sorts.*

Another line of governmental activity concerned with bettering the condition of the poorer classes and so in effect redistributing the social income, looks after *defectives*,—the maimed, the blind, the insane, the feeble-minded,—either in part or in whole at public expense. The wealthy could afford to provide for this themselves, the poor could not. Again, the government often manages certain industries which furnish fundamental necessities such as water, gas, and electric current, in order to help the poor by supplying these at lower prices than would appear under private initiative. In Europe

* The student is of course aware that much of this sort of work is done by the voluntary contributions of the rich; but we are here concerned only with the activity of government.

a number of municipalities have gone so far as to undertake the running of street car lines, charging fares, especially for workingmen, below the cost of the service. Still again, governments improve the condition of the less well-to-do by maintaining institutions for supplying all classes with forms of *entertainment* which would naturally be open only to the rich. This is illustrated in the maintenance of free public libraries, picture galleries, opera houses, parks, and play grounds.

4. Activities Designed to Guard the Social Group as a Whole

In the last section we dealt with activities designed to improve the condition of the poorer classes. All such activities may be and doubtless are inspired in part by another motive, the desire to improve the condition of the group as a whole—the city, the state, the nation. For surely any group which hoped to prosper as a whole would see to it that taxes were levied with relatively less weight upon the poor, that defectives were cared for, and that education for all was provided. The foremost motive in all these activities, however, is perhaps the welfare of the classes or of the individuals who are directly aided. We come now, on the other hand, to a type of activity motivated mainly if not entirely by the desire to improve the welfare of the group as a whole; a type intended not to guard the individual, but to guard the group against the evils which might result from the unhindered working of the present system. It may be true, as has been implied in much of our earlier discussion, that for all individuals everywhere an absolutely spontaneous, automatic working of things would be on the whole, best. In that case a man whom we should describe as thoroughly cosmopolitan in spirit, one who is interested in all humanity, would find in such regulation the highest possible ideal. But this description applies to very few of us indeed. Oftentimes we are not interested in the welfare of individuals everywhere, nor even in our own immediate welfare, or in that of people directly de-

pendent upon us, so much as we are interested in the success and greatness of the city, state, or nation to which we belong. Further, the welfare of an individual *does not necessarily consist with that* of his group; there is a possible antithesis between the welfare of individuals constituting a group and that of the group considered as a whole. Hence, if any group of men come to believe that the free, automatic regulation of economic relations between their own group and other groups, (although best for them as individuals and for all individuals everywhere) hinders the accomplishment of some greatly important good *for their own group,* they will naturally insist upon interfering with this automatic regulation, and insist on resorting to *conscious* control through the power of the state.

The chief application of the idea just set forth arises in connection with the problem of *maintaining the independence and power of the nation* over against its neighbors. The efficiency of a state at this point manifestly depends on economic as well as on purely military considerations. A nation needs to be wealthy; it needs to have great capacity for the production of the instruments of war; it needs to be insured the forthcoming of the fundamental necessities of life in case it should through the fortunes of war be cut off from its usual sources of supply. Now it is perfectly possible that the spontaneous working of economic forces should result in neglect in some of these fields. The natural resources of the nation may be chiefly agricultural; so that the unrestricted pursuit of private gain may hinder the nation from developing the manufacturing industries and so render it unprepared to supply itself with the manufactured goods needed for war. On the other hand, it may naturally be an exclusively manufacturing or commercial nation, obtaining its supplies of food from other countries. The pursuit of private gain may then fail to develop sufficiently some industry on which its very life depends.

The possibility that unrestricted private initiative may thus expose a nation to complete destruction if cut off by war

from its ordinary sources of supply has led governments to put high taxes on the importation of foreign goods, thus raising their prices and so making more profitable the producing of similar goods at home. Legislation has been used, likewise, to develop important forms of manufacture; so that we find almost all nations erecting tariff barriers to shut out the products of their neighbors and stimulate the home pursuit of the same industries.

We have commented on those activities of the state which are designed to protect the group as a whole against other groups by avoiding the economic weaknesses likely to result from individual action in economic matters. Another set of injuries growing out of individual liberty is associated with the *dissipation of our primary resources in land, raw materials, etc.* Experience has shown that private self-interest cannot be trusted to conserve the stores of coal, iron ore, copper, oil, and timber which constitute, so to speak, the patrimony of the nation. It is essential, therefore, for the welfare of the nation as a whole, that government should step in with a policy of **conservation**, well planned and strictly enforced. Similar to this case and even more important is the conservation of the life, health, and strength of the people themselves. Unrestricted private freedom in business has meant an exploitation of the strength and capacity of working people, especially women and children, quite inconsistent with the welfare of the group as a whole. As a consequence, there has developed through a century of agitation and legislation a great body of statutes designed to guard the productive population against the evil effects of excessive and unsuitable labor in unsanitary conditions.

To sum up the contents of this chapter. Upon the economic order described in the last chapter as one of co-operation automatically effected and regulated by exchange, we find at many points the influence of conscious regulation directed by government. Certain activities of government in enforcing the right of free initiative, private property, contract, and

exchange, are necessary to allow the automatic principle to work itself out in any really effective manner. The government can also interfere in various ways to make the operation of the principle more effective than it would naturally be. Further, government may and does interfere at some points in contradiction to the principle, thereby improving the condition of certain classes and enhancing the power of the nation.

The emphasis we have put upon these modifications should not, however, lead us to overlook the fact that they are, after all, *modifications and that only*. The great essentials of the economic order at present existing are not these things but the things we described in the last chapter. The present order is in the main one in which, through the spontaneous action of the individual, pursuing his immediate self-interest, there arises co-operation of a highly advantageous sort, effected and regulated by exchange. It is that spontaneously developed organization or, better, organism, which constitutes the real framework of our system. And it is that organism which in the further study of this course we should keep most prominently in mind.

CHAPTER IV

ANALYSIS OF PRODUCTION

The central fact of economics, as heretofore pointed out, and the starting point for all thinking on economic matters, is man's *wants*. These wants, as we have also seen, are supplied by things called economic goods, which take the form either of commodities or services. Now, a very little reflection will convince anyone that practically all economic goods become possessed of their capacity to satisfy wants through the action of men. Fish may grow in the sea and fur on the animal's back and trees in the forest; but, strictly speaking, these objects do not become commodities suitable for application to our wants till they have been appropriated, shaped, and otherwise worked upon by forces directly manipulated by man. The same is even more obviously true of services, for in case of something like a lecture or a song, the very substance of the thing which gives satisfaction appears not to come into existence until the lecturer or singer puts forth his effort. This process of preparing goods for the satisfaction of wants is called production. Accordingly, since our wants are so urgent and since nearly all goods are necessarily so prepared, production must be recognized as one of the most important divisions of the study of Economics.

Section A. **What Is It to Produce?**

To begin with, what do we mean by the term "produce?" In everyday language, the word is used in several different senses, some of which are very broad, and some quite narrow; and in the present study, we may at times allow ourselves a similar freedom. In the interests of clear exposition, however, it is best at the outset to adopt a meaning which

we shall expect to have in mind when we speak, as economists, with the strictest scientific accuracy.

And first, we shall not usually have in mind, except possibly as supplementary or illustrative data, any of the details of *technical* production. The study of production undertaken by economics is not of course an exhaustive one. Much the larger part of what might be said under this head is relegated to technical sciences and arts such as Engineering, Agriculture and Mechanics. Economics limits its study of production to certain most general aspects, especially those having very close relations to the problems which form the heart of Economic science, the problems of *value*. The economic meaning of "produce" which will be oftenest used in this course and which probably has most vogue among present day economists is the following:

To make any contribution to the satisfying of human wants, whether this be done by persons or things, providing such contribution has a value or price.

Two qualifications are here stated—that the contribution made must assist in satisfying human wants, and that it must have a value or price—in other words, *must have an economic character*. In the light of previous discussions we shall need few words to justify the second of these qualifications. We are studying economics, not physical science. The sort of production we are concerned with is economic, not physical production. But economics, as such, takes account only of those things which have value or price, and accordingly our definition of economic production is restricted to acts or conditions which have a price.

The first part of our definition will require more careful examination. Any valuable act or thing that makes a contribution to human wants is productive, but what do we mean by making a contribution to human wants? Since wants are all supplied, in the last analysis, through material goods, it must mean to be responsible in some sense or degree for the

existence of material goods having the qualities essential for our satisfaction. But, to pursue the question further, how can a man be responsible for the existence of any material object of want-supplying qualities? He cannot create the ultimate substance of an object, for all matter exists and always will exist in some form without his will or sanction. His contribution must, therefore, consist merely in bringing substances or materials which already exist into such a condition that they are capable of satisfying wants. Hence, since the capacity to satisfy wants is called *Utility,* we may say that *to produce is to create utilities*—the contributing act or thing being always understood to have value.

The emphasis laid on *utility* in the above analysis makes desirable some further comments on this term. First, as the word is employed by economists it includes many different kinds of "*fitness* to satisfy wants." Thus, we have the fitness which inheres, so to speak, in the economic object: an elementary utility, as for example in the mere *substance* of copper; and a *form* utility, illustrated when that copper has been drawn into wire and prepared for carrying an electric current. Besides this inherent fitness, we have the fitness which consists in the *relations of the economic object to men.* Thus a loaf of bread situated where it is wanted is more useful than an exactly similar one situated where it is not wanted, and accordingly the economist talks of *place* utility; ice which is preserved from the cold months when it is not wanted till the warm ones when it is wanted, assumes what we call a *time* utility; and a commodity passing from the hands of a person who has no need of it to those of one who does have such need, acquires an *ownership* utility.

Again, it should be noted that utility includes all sorts of fitness to satisfy wants, without respect to the character of the wants. Thus, the fitness of coal to warm one is utility and the fitness of bread to nourish one; but the fitness of diamonds to give one aesthetic enjoyment or even of whiskey to give him vicious enjoyment is also utility—to the economist, dia-

monds and whiskey are just as truly useful as coal or bread. This of course does not mean that the economist holds different ideas from other people as to the relative importance of necessaries and luxuries or as to the undesirableness of using intoxicants. But in his terminology he must recognize the *common* element in diamonds, whiskey, bread and all other economic objects which fits them to satisfy human wants; and utility is the word which he has adopted for this purpose.

Another point to be noted before we leave this general topic, the meaning of "produce," is that produce should not be understood to mean *creating value*. Since it is the producing of wealth that we are talking about; and, since wealth has value, it might seem that, to produce, one must be responsible for the existence of value. But this is a mistake. The producer as such is not responsible for every element in wealth but only for the element of utility. His task is to do whatever needs to be done to insure that objects or conditions shall be fitted to satisfy man's wants. Now, this must, of course, be done before the objects or conditions will have value. In doing it, therefore, the producer contributes to the process whereby value comes into existence. But he is not *wholly* responsible for the result. The existence of value requires the fulfilment of *two* conditions: (1) that the thing having value shall be useful and, therefore, wanted, and (2) that it shall, for one reason or another, be *scarce,*—limited in amount as compared with what is wanted. The productive process fulfills the first of these conditions. But, in so far as the fulfilment of the second depends on the productive process, it is the *necessity* for that process, not its carrying out, which does the work. Because we *must* produce things if they are to exist, because *our capacity to do this is limited* as compared to our wants, and probably, also, because production involves sacrifices, the amount is certain not to be adequate to the satisfying of all our wants. As a result the things produced are certain to have value. But this result the producer, per se, has not brought about. To the extent of his capacity and incli-

nation, he *has neutralized* one of the conditions, namely, the scarcity of the product. And this is his function as a producer. His business is to give things the capacity to satisfy wants and so the capacity to call forth demand. That these things, after all, are scarce and so command a price is due to conditions not resulting from the productive act.* Perhaps the most convincing argument on this point is that *the producer could best contribute to the fulfilling of the scarcity condition of value by acts sharply opposed to the productive act, namely, by refraining from production or even by actually destroying goods.*

One last point to be remarked under this head. We should attribute to each producer the utilities of the particular commodity (or the particular service) for which he is *immediately responsible.* Thus, the farmer produces, not bread or flour, but wheat. The miller produces not bread but flour. The employes of the miller produce not flour but services, which the miller combines with the services of various machines and wheat in such a way that *he* produces flour.

Section B. Economic Factors of Production

It is obvious on the least reflection that to produce wealth or economic goods necessitates the combined operation of different things,—different elements, forces, conditions. To raise potatoes, for example, we need a place on the land, suitable soil, labor, tools, sunlight, moisture, nitrogen from the air, and so on. Now, all these different things—these elements, forces, conditions, we call *factors of production.* They include everything which contributes to the result attained; and their number is legion. But not all of these factors belong to our study. A very considerable number of them we call *non-economic,* meaning that they are lacking in the characteristics which belong to all things economic. While all of them are useful, not to say necessary, to man, they are not appropriable, or are superabundant, or are given gratuitously by the

* We assume, however, that those conditions are fulfilled. See page 41.

[illegible] reason fail to take on the

INSERT, p. 44

ILLUSTRATIVE PROBLEMS.

1. The conception of "produce" held by the man who calls middlemen parasites is really the same as the one given in the text, though we emphatically deny his contention that middlemen are parasites. Defend that statement.

2. "St. Thomas is not a producing island. Its importance consists in its position as a harbor of refuge and a coaling station, and as a place for refitting vessels." Show from the passage that St. Thomas *is* a producing island, as we understand the word.

3. Have the playing cards of a gambler utility? Are they wealth? Has a diamond ring utility?

4. A man who is getting no income now but expects to have one six months from now borrows $100 from his neighbor, promising to pay back the $100 and $6 more at the end of a year.

(a) Does the $6 represent any advantage,—service,—received by the borrower?

(b) If so, can the lender reasonably be credited with the production of that service?

5. "Only miners, lumbermen, farmers, and such like ought to be called producers; for they are the only ones who *add* something to the total wealth. The rest merely change the form or relations of the things which the above-named produce."

Show that there is no essential difference in the contributions of the farmer, the miller, the baker, the grocer, and the delivery man.

6. "The Chinaman lives economically. He earns all he possibly can and saves it and takes it back to his native land. He is a very economical consumer, and *instead of being a wealth producer, acts as a leech upon the wealth of the nation,* sucking in all that he can and taking it away to enrich the land of his ancestors." Criticise the part in italics.

7. Mr. X. hires the opera house for an evening and hires the Mendelssohn Quartette to give a concert in it. I pay 75 cents to hear the concert.

(a) In precisely what does the wealth which I buy consist, the work of the singers, the pleasure I derive from the singing, or something else?

(b) Did the Quartette produce the wealth I bought, or something else?

(c) If the Quartette did not, who did?

8. "Thus there are today tens of thousand of lawyers, bankers, traders, middlemen, speculators, and others, whose functions, *necessary* to the capitalistic regime, would (under socialism) cease to have any value. They would be compelled because of this to enter the producing class."

(a) Show from the quotation itself that, under a reasonable interpretation of the phrase "producing class," the groups of persons named are already in that class.

(b) May the labors of these persons be productive now, although they would not be productive under socialism. Don't forget to explain.

9. "Labor alone is the producer of wealth; take away labor and not all the capital in the world could produce anything."

Allowing the second clause to be true as a statement of fact, does it prove the proposition contained in the first?

10. Accepting the conception of wealth given in these Outlines, the conductor of a street car is a producer of wealth.

(a) Just what form of wealth does he produce?

(b) For whom does he produce it?

(c) Who produces the wealth I buy when I ride in the cars?

government, or for some other reason fail to take on the property of value, especially pecuniary value, which is the distinguishing mark of economic things. Non-economic factors include the sunlight, moisture, and nitrogen, mentioned above, also the body of knowledge inherited from the past by each generation, the protection of government necessary to successful production, the many direct contributions of government to productive processes, the gratuitous advice and assistance of other persons not directly participating in a particular task, and many other things one could mention. Many of these non-economic factors are absolutely essential and so of an importance indefinitely great. But, in general, the economist gives them brief consideration because they do not belong to his realm or belong to it only in a very limited sense. His study, therefore, is chiefly occupied with those factors of production which are strictly economic.

The distinguishing characteristic of economic factors was noted above. Such factors have *value,*—in the present order, have *exchange value,* and that expressed in terms of money — *pecuniary value.* These economic factors are very numerous, including the land, the great variety of substances out of which or with the help of which man produces goods, and many different types of effort or sacrifice which man himself must undergo. For some economic purposes, anyhow, the grouping of these factors into a few large classes seems of little utility. Not much is gained, for example, by making a study of *wages* which includes under this head payments for the services of ditch diggers, railroad presidents, and Carusos. But, while we should all the time bear in mind the really great diversity among the economic factors, for some purposes it is very desirable to group them into a few great classes. The classes commonly recognized by economists are the three following: (1) those of natural origin, roughly designated by the one word *land,* (2) those of human origin, the efforts and sacrifices that human beings make in produc-

ing things—usually covered by the term *labor,* and (3) things which have been produced by man and nature but are destined to be used for further production, — intermediate products — commonly designated *capital.* We will now make a somewhat detailed study of these different types of factors.

1. Labor

By labor we mean the effort directly put forth by human beings, including not only labor in the popular sense of physical exertion, whether skilled or unskilled, but also mental and nervous efforts of any sort—book-keeping, managing, advertising, or promoting. It makes no difference how humble the effort or how high, it makes no difference whether the effort be directly applied to the materials out of which the good is being produced, or whether it be applied indirectly, as in the management of a concern or in service on the board of directors—that effort classifies in the economic sense as labor.

The specific contribution which labor makes to the existence of an economic good consists in *a shifting or rearrangement of the materials that compose it.* Labor cannot, strictly speaking, perform an act of sheer creation by adding to the world's stock of imperishable and unproducible matter the substances of which a commodity—say a pair of shoes—is made. It can only remove the hide from the cow where it grew; at the tannery, remove from the hide certain undesirable elements and add others more desirable so that the hide becomes a strip of leather; and at the factory, cut the leather into pieces, arrange pieces of various sizes and shapes in certain relations to each other, and secure them there by the addition of other elements, such as nails, thread, and glue. In a word, labor creates no substance or substance utilities, but it does create in a substance already existing the utilities of form, time, place, and so on.

That the functions thus performed by labor are essential to almost every kind of production, is too evident to need ar-

gument. Labor is, therefore, a factor in production,—a physical or technical factor. But it is no less certain that labor is also a true economic factor. It cannot be had for the asking; it is scarce relatively to the need for it; it has exchange value.

2. Land

The second element, Land, includes in general all the contributions made by nature; meaning both land in the popular sense, as position on the earth's surface, and various substances, such as coal, iron, water, and standing timber in the forest, which exist as they are without any care or intervention of man's.

The specific contributions which Land makes to the existence of economic products will be apprehended at a glance. It furnishes *place,* the ground on which man himself and all assisting factors are located; and the *original substances* out of which all goods are produced, — the **primary raw materials.** In view of these facts, it is manifest that there is no form of production which does not require the participation, in some kind or degree, of this element or factor. Land or Nature is a necessary factor in all production.

But, though land or nature is a factor in production, is it necessarily an *economic* factor? If we mean to include everything from nature which man employs in production, the answer is obviously in the negative. Air, moisture, and sunlight, while necessary to production as physical or technical factors, are not controllable or appropriable, and therefore lack the element of value,—for which reason, they have no standing whatever as economic factors. Again, position on the earth's surface, though appropriable, may fail of being counted as a true economic factor. In partially settled countries some of the land actually in use is no more desirable than much which is not in use; there are other waste pieces lying all about which could be substituted for the used piece with no decrease in the product, and at practically no expense. Now,

because other land of its kind is so abundant, the particular piece first occupied will have no price. It will be a free good, like air or moisture, and, so, according to our definition of economics, will not be an *economic* factor.

But, after all, comparatively few of nature's contributions can be disposed of in this way. While position on the earth is free in the wilderness, it is in settled communities very distinctly not free, because, in proportion to the population, it has become *scarce*. Commonly, then, land, as position on the earth's surface,—the original, unproducible, indestructible earth—is a true economic factor. No argument is needed to show that the same is often true of Primary Raw Materials, such as coal and iron in the earth and standing timber in the forest; these also usually have value because relatively scarce, and so must be accounted economic factors.

Some might, perhaps, object to the argument that land necessarily comes to have value and so comes to be an economic factor, in this wise. "All land was originally a free good, a gift of nature. That it now has value and, so, is an economic factor in the sense here used, is due to unjust laws which authorize private persons to own it,—make it their property." The unsoundness of this view is easily shown. Ownership is essential to the existence of exchange value; but such value cannot be given by ownership alone; there must be *scarcity* as well. If there is monopolistic ownership, to be sure, this scarcity itself may be secured artificially, and so the economic character which the scarcity helps give to the land will be in so far arbitrary in nature. But the ownership of land is not usually monopolistic; there are many competing owners. The scarcity of land, taken generally, is a perfectly natural thing; the available supply is limited just because the earth stands as it was created; and hence the value of land, arising from scarcity, is also perfectly natural. Even under socialism, land would have a natural value because of its natural scarcity, and for that reason would be an economic factor, just as truly as now; only, the owner of the land would

then be *the state,* and accordingly the contribution made by the land in production would be credited to the state rather than, as now, to private individuals. We must conclude, therefore, that, wherever land is scarce relatively to need, it should be counted as one of the true economic factors of production.

3. Capital

Capital, the third principal factor in production, gives us one of the most difficult topics in our science. While this is, in part, to be charged to the failure of economic specialists to reach complete agreement in respect to the proper analysis, it is largely due to the inherent difficulties of the subject. In this connection, therefore, we have to ask for more than ordinary care and patience on the student's part.

Capital, as commonly understood by economists, particularly in connection with the topic of production, means *produced goods which are intended to assist in further production.* Such goods contrast with the second factor in production, land, in that they are produced, not given by nature. On the other hand, they contrast with consumer's goods, or consumption goods, in that they are destined to be employed, not to satisfy wants directly, but to help in *producing* something which will satisfy wants. Thus, a factory building, with the steam or water power created for it, and the tools and machinery of various sorts set up within it, are clearly goods which we would never produce for purposes of immediate enjoyment, but only for the purpose of further production which will result in shoes, clothing, and other commodities. Likewise the leather and the wool or cotton yarn which go into these factories gratify human wants only indirectly, by virtue of the fact that they are on the way to become shoes and clothing.

The fact that the kind of goods which the above definition puts under the designation capital have as one distinguishing mark their use in further production has led to various other

designations for those goods. Thus, they are sometimes named "producers' goods," and sometimes "intermediate products." The method of production which pursues the policy of using such intermediate products instead of trying to produce the consumption goods directly, is known as the roundabout method or "the capitalistic method."

Now, if we confine our thought strictly to the concept of capital as defined above, there can be no occasion for answering the questions discussed in connection with labor and land, namely, whether we have here an actual *factor* and whether it is really an *economic* factor. The tool, the engine, the machine, are obviously producing in the sense that we can get more product with them than without them, hence they are factors. Further, they have a price, and so are *economic* factors.

But, if by a strict interpretation of our definition of capital we simplify our task in one direction, we immediately increase its difficulties in another. For, if capital is nothing more than produced goods devoted to further production, the question at once arises whether capital as thus defined is really an independent factor, a factor *different from the labor and land which have already been treated.* Capital goods, intermediate goods, the objector declares, being themselves products, are mere embodiments of previous elements or factors. The hoe with which I cultivate potatoes is, of course, something different from the labor which uses it. But, while now different, the hoe owes its origin to the labor which made it, and whatever it is able to produce should be credited to that labor, just as much as if it had been spent *directly* on the potatoes. The proper course, then, is to credit the potatoes to labor solely,—though of course to the *whole* labor involved: the labor spent on the hoe and the labor spent in using the hoe.*

* Since the hoe would be used for many other products, the labor spent in making it would be credited with its share in other products as well.

And, consistently with this procedure, we should describe capital as *one special kind of labor*, "congealed labor," or, if we *must* recognize land as a necessary economic factor, we should describe our capital as congealed *land and labor*. Anyhow, we cannot properly treat it as an independent factor, something really different from nature and labor.

The answer of the economist to the contention of the last paragraph is, in general, this: the intermediate goods under consideration must be treated as constituting, in some measure at least, an independent factor, *because they necessarily embody another element beside labor services and land services, namely, the element of* **time** or **waiting.** Consider the case of a fisherman who, instead of catching fish directly with his hands, begins by making a net and then uses his net to catch them. We do not adequately describe the situation when we say that, in making and using the net, he is merely *working on a different plan* from what he would be in catching fish with his bare hands. Such language suggests that any one who can take fish by the hand method, and who has at the same time the technical ability to make and use a net, will be able to fulfil all the requisites of fishing by the net method. But this assumption is of course far removed from the truth. The fisherman *who has enough dried fish in store* so that he can devote, say, thirty days to the construction of a net, will be able to resort to the net method. In contrast, another fisherman with equal skill in net making and net using, but who has nothing to satisfy his hunger beyond today,—he will, *just because he lacks that surplus of food,* be forced to content himself with the hand method.

That this must be so is readily seen. It is a peculiarity of the capitalistic method that the producer reaches his goal by a *roundabout* path. Instead of trying directly to accomplish his object, he has first to do several other things—things which seem perhaps very little related to his ultimate object, but which are after all aimed toward the object in the strictest

sense. Instead of trying to cut down the tree at once, the woodsman first sets about obtaining an axe with which the work may be done. But that is a very simple illustration of roundaboutness. In a highly specialized economic society, the woodsman does not himself even make directly the axe with which the tree is to be cut. Far away, perhaps, in some other part of the country, iron ore is dug from the mine; coal is mined also and turned into coke; the coke and the ore are used together in turning out pig iron; the pig iron is transformed into steel, and the steel is fashioned into an axe which the woodsman buys finally to cut his tree. Looking at society as a whole, the cutting of the tree is the last in a long series of processes having no immediate or perceptible connection with tree cutting but yet, as it turns out, really directed thereto. *Roundaboutness* therefore, whether simple or complex, is an unfailing characteristic of the capitalistic method.

Now a roundabout method, it is plain, usually if not always *consumes more time* than a direct method. For the production of a certain definite amount, of course—assuming it to be a large one—the roundabout method will not necessarily prove to be the longer; on the contrary, it will probably in the end prove to have been much the shorter. Thus, if a fisherman wishes to catch a ton of fish, he can do it more quickly by first weaving a net and digging out a canoe. On the other hand, if the fisherman wants a single meal of fish or meals for a day, he surely can obtain that amount by the hand method in a much shorter time than it would take him to prepare the elaborate apparatus and then catch them. In a word, reckoning from the time when the *first steps* toward the goal are taken to the time when *some* returns, however small, are received, the roundabout method is always the longer. Between the incurring of the labor sacrifices necessary for production and the enjoyment of the fruit of those sacrifices stretches a long interval—hours or days, perhaps even months. Capitalistic methods are, in short, *time-consuming* methods.

Hence it follows that the resort to these methods usually requires of producers something which not every one is able to do, namely, to *wait*. In other words, no one can hope to use the roundabout method of production, the method of first creating intermediate goods and then using these to reach his goal, unless he has the power, not merely to labor in the ordinary sense, but also the *power to wait*. If some one wishes to regard this waiting as only a *special phase* of labor, he has a perfect right to do so. But, at all events, this element is essential to the use in production of the intermediate-goods method—the capitalistic method—; and it is an element which in practice *can be, and commonly is, separated from the element which is unmistakeably a labor element*. Accordingly, it is necessary to insist that the intermediate goods now under consideration are embodiments, congelations, not only of land services and labor services, *but also of waiting* services. They, therefore, have to be distinguished as constituting, in some sense and degree, a factor independent of land and labor.

The preceding analysis has brought us to the point of recognizing as a vital element in the concept of capital that it should embody *time*. In fact we have really admitted to the objector that he is, in a measure, right; if capital required for its production nothing more than land and labor in the ordinary sense, it would not be sound analysis to treat capital as an independent factor. Such treatment is justified only because there is necessary in the case *another* element: *waiting*. But this admission almost compels us to distinguish capital as mere products from "capital as capital,"—meaning the goods in question *looked at in just one narrow way*, namely, *as embodying the power to wait*. This is, of course, an abstraction; it can have no existence independent of the goods themselves; but it is an abstraction which need trouble no one to carry safely. It is constantly recognized in the process whereby the machine has a price representing its costs of production, while the lending of the cash necessary to buy the machine has another price, namely, interest. I still hesitate

to say that the real capital is the fund of value embodied in the goods; but I shall feel at liberty to talk about "capital as capital;" and I shall mean the goods viewed in this narrow way, as embodying the power to wait.

But, now, in presenting this new aspect of capital, we have revived the questions which were formerly thrown out: namely, whether capital is really a factor at all and whether, if so, it is an economic factor. For the capital we were then discussing was a narrower concept than that now before us. Again, however, these questions need not long delay us. In bringing out the new way of conceiving capital, we have already shown that *the power to wait* is commonly essential to the use of the capitalistic method. But this being true, it follows that capital as waiting-power, capital as capital, is necessary to most production. It is, therefore, a real *factor* in production.

Again, the question whether capital in this special sense is really an *economic* factor is easily settled. As already brought out, anything which is a factor in production at all is also an economic factor if, as respects itself or its services, it shows the distinguishing mark of economic things, economic goods, that is, *value, price.* This, as we have seen, is certainly true of capital as capital; its services command a price, which we know as interest. Capital as capital, therefore,—capital as distinct from the mere product in which it is embodied—is not only a factor, but also an *economic* factor.

Before leaving the topic of capital, it seems desirable to call attention to some distinctions between *different forms of capital* which have more or less currency. I have already explained the distinction of *capital as capital* which I find it very convenient to make. That designation means capital looked at as involving waiting.

A somewhat different solution of the difficulty which we met by this concept of capital as capital makes the essence of capital to reside in the *fund of value* embodied in the goods commonly called capital. This is *real* capital, *pure* capital,

value capital. In contrast, the goods are *concrete* capital or *goods* capital or *capital goods.*

Closely allied to the last distinction is one which contrasts *money* capital with real or goods capital. The former is the fund of money which is accumulated and then used to purchase the goods capital; or, better, perhaps, which is conceived as having been put into the goods capital. This in turn suggests the distinction of *invested* capital and *free* capital, a distinction which the terms sufficiently explain.

A distinction which is sometimes useful is that between *formal* or money capital and *real* or goods capital. The former is the fund of money or bank credit which the capitalist accumulates; while the latter consists of the actual goods, the engines, machines, coal, etc., which are elsewhere produced to be bought with the money capital. This distinction emphasizes the point that the things which we are really trying to get are the engines, machines, etc., the fund of money being only a go-between. The distinction must not, however, be taken too seriously. In a very important sense, the man who accumulates the mere fund of money is responsible for the existence of the engines, etc. He it is who supplies the waiting-power which makes possible this particular employment of our productive resources.

Among older ways of distinguishing different forms of capital is one which contrasts fixed and circulating capital. The former is capital, like a tool or a machine, which gives off *more than one service,* while the latter is capital, such as the raw material used in making a wooden box or the coal burned in a steam engine, which does its part in a single use, *gives off but one service.* An interesting contrast is often drawn between *specialized* and *general* capital. Specialized capital is the kind which is fitted for one purpose only or for a very few purposes at most, for example, a planer, a copper steamer, or a printing press. Generalized capital on the other hand is something like coal, or pig iron, or most of all, money, which can be put to any one of many uses.

Most people broaden the concept of capital as "products devoted to further production," making capital synonymous with *income-getting goods,* or all goods which serve their owner indirectly by supplying him with *other* goods. If we take the word in this sense, it is necessary to recognize a distinction between *social* capital and *private* or *acquisitive* capital. Social capital, which is virtually the same as that discussed in the foregoing paragraphs, produces other products, and is therefore income-giving even from the social point of view. But private, or acquisitive capital—for example, a gasoline launch rented to a summer resorter—does not increase the total volume of goods and so is not income bearing from the social standpoint; it yields an income to its owner only.

Some writers include under the term capital all *durable* products, not only those devoted to production, but those, such as a dwelling house occupied by its owner, which are devoted to consumption as well. While the older usage is preferred by most authorities, there is doubtless something to be said in favor of the new; and we may find it convenient on occasion to speak of *producers' capital,* meaning the kind originally defined, and *consumers' capital,* meaning consumers' goods which have a durable character and give off many services.

A very natural extension of the term capital makes it to include such facilities and constructions as highways, canals, and bridges, which are usually maintained by the government. These things manifestly show the characteristics of being produced and devoted to further production. They are not, however, subject to private ownership, and so do not have a price; hence they are not wealth in the usual sense, and, if capital is to be restricted to wealth in that sense these things are not capital. A natural compromise is to call them *public* capital.

A less legitimate broadening of our term takes in the body of knowledge handed down from generation to generation which plays a very large part in economic production. In a

sense, this has been and is being produced; and it is obviously being used to assist production. It is not, however, included among the things which possess exchange value, command a price. It is not, therefore, wealth; and, not being wealth, it can be called capital only in a figurative way. It is sometimes designated social or public capital.

Finally, it is sometimes convenient to speak of *personal* capital, in reference to the bodily or mental capacities and aptitudes of human beings. Most economists, however, consider such language figurative. Capital is only a particular kind of wealth, or wealth looked at in a particular way. But personal capacities are not wealth because, not being transferable, they have no exchange value; and if they are not wealth, they cannot be called capital in the economic sense of the term.

4. Responsibility-Taking

We have thus far recognized only three classes of factors the operation of which conditions the existence of practically any and every economic product. With these three, economists usually stop. But there has emerged more or less clearly an implicit recognition of a fourth factor*, namely, **assuming the responsibility of production — willing that production shall go on.** That this is an essential condition is obvious. Failure to isolate it in setting forth the different factors is, perhaps, due to the fact that under simple industrial conditions it is too intimately associated with one or more of the other factors. That the farmer who uses his land, labor, and capital to raise wheat must *will* to raise wheat is too evident to need comment,—indeed, it is involved in saying that he so uses them. Is it not, then, a mere fantastic refinement of theory to separate this function in the total process from the rest? The reason for a negative answer is not far to seek. The plain fact is that, instead of being a refinement of

* It seldom appears explicitly in discussing the factors of production.

the theorist, a more or less complete separation of the responsibility-taking function from the other functions is *characteristic of actual industrial practice.* The men who are responsible for the producing of the vast majority of goods and services outside agricultural products, rarely own the land which they use, perform little or no labor themselves, and own only a part, anyhow, of the capital employed in the business. This would seem to establish pretty conclusively the claim of this function to be a separate one in the productive process,—to be a fourth factor in production.

It may, however, be objected that, granting what has been said, this plainly distinguishable function, after all, *belongs to one of the factors already discussed,* namely, *capital.* If the man who assumes the responsibility of willing that production shall go on does not himself supply the capital, he must, anyhow, have *other property* to insure the capitalists from whom he borrows; since otherwise, not he but they would really be assuming the responsibility. This objection is sufficiently true to make it best, perhaps, to treat the function under consideration as *one of two capitalistic functions,*—making those two waiting and responsibility-taking. To do so does not seem quite logical, since, in the case of the producer who borrows the capital he employs and secures his loan by a claim on other property, the waiting-power—the capital—actually employed is supplied by some one else. The responsibility-taking function, one might say, belongs to *property* rather than capital. However, the point is not important. The function is very real and, in both theory and practice, easily distinguishable from the one which we have recognized as peculiarly the capitalistic function, namely, waiting, supplying the condition essential to the use of time-consuming methods. We shall, therefore, recognize it as a fourth factor in production without further effort to define its precise relation to capital in the narrower sense.

The function of responsibility-taking involves making the general decision to produce in the field chosen, the bearing of

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ILLUSTRATIVE PROBLEMS.

1. "Discovery and invention have doubtless played a very large part in securing our present high industrial efficiency. But they are not the whole thing. The increase of capital has been equally necessary; for, without capital, invention could have accomplished little or nothing." Defend and illustrate the last sentence.

2. "The common pursuit of forestry as a private business almost had to wait until capital became relatively very abundant." Why should this be true of forestry more than of wheat raising?

3. The following is taken from a short story in a recent number of one of the popular magazines. The hero inherited great wealth in rolling mills and has for several years successfully continued the business. He is also public-spirited and liberal. Referring to his charities, the author says: "What was it that he had given? Something that he . . . had never earned. His hands had never touched belt or pulley. He looked at them curiously. *It was the toil-hardened hands of twelve hundred other men that made his giving possible*—the hands of the men he was planning to turn off on Monday."

Show that, if this was a normal case, we could impute to the services of the twelve hundred workmen *only a part* of the net output of the mills; that the portion going to the proprietor was reasonably enough credited to his contribution to the business. Enumerate several elements which probably entered into his contribution.

4. "The most of us live by our wits—spend our time wheedling the true producers, the men who work with their hands, into sharing with us the things which they produce."

Give several illustrations of kinds of labor necessary to production which would not naturally be described as working with one's hands.

5. Josiah Wright, the wagon maker, is making a lumber wagon which he expects to sell to some neighboring farmer. Now, a wagon is undoubtedly capital or capital goods; yet in making that wagon, Wright is not, strictly speaking, producing capital. Explain the riddle.

6. Some writers have been disposed to affirm that, in the last analysis, all capital gets its start in a surplus of the means of subsistence, particularly food. This undoubtedly has considerable force as applied to primitive conditions. Illustrate the proposition for a community of fishermen.

anxiety, the assumption of various kinds of risk, and a limited amount of managing, so much as is incapable of delegation to persons working for hire. Such a function is plainly the most vital and central in the whole productive process. Nature provides material; labor provides power to rearrange the material; capital provides waiting-power, enabling these materials to be arranged by a round-about process; yet, though all these were present, no product could come into existence without the willing that the required rearrangement of material should take place. The will-to-produce is the productive factor *par excellence*. All other factors contributing to a business are naturally conceived as *auxiliary* to this; *their services are assembled and combined through the will-to-produce;* and out of the will-to-produce emerges directly that commodity which is the product of the business taken as a whole.

Assuming the responsibility of production is, therefore, a factor in production,—something without which production cannot go on. But it is also an economic factor; for it commands a price. The men who perform this service must, generally speaking, receive a profit in return for their services.

Accordingly, we shall usually speak of four classes of factors in production: Land (nature), Labor, Waiting, and Responsibility-taking. Three of these are manifestly of human origin. We may, therefore, group the four as follows:

Factors
- Nature—Land
- Man
  - Labor
  - Waiting
  - Responsibility-Taking

Section C. The Agents (Actors) in Production

The preceding discussion has dealt with the factors employed in productive processes, the factors formally set apart and distinguished as by a chemical analysis. Now the control of these several factors is in the hands of human beings,

and is, or at least may be, in the hands of different classes of human beings. Accordingly, we are able to name several classes of *producers,* of human agents or actors in production, corresponding to the different factors. This classification has already been anticipated; but a more explicit reference is now demanded.

1. The agent in production corresponding to the first factor is, of course, the laborer,—the human individual who furnishes services which are the product of his own effort. It makes no difference whether the services are of physical or intellectual character; it makes no difference whether they are of the humblest sort, or of the greatest and most conspicuous, the man who furnishes them is a laborer. Promoting is labor, and managing is labor, as we have seen; and the promoter and the manager are therefore laborers; the $100,000 president of a corporation is a laborer as truly as his office boy or the mason building his walls or the machinist in his shops.

2. Just as the laborer is the human agent in production corresponding to the element or factor called labor, so the agent corresponding to the factor called land is the land owner or *landlord.* The landlord is the individual who furnishes for productive purposes the use of land or land services. It is possible, as we conceded in the preceding section, to have an economic order in which land owning is not permitted, and therefore one in which this agent of production is not represented by any private individual. But it is not now possible, nor has it been possible since the very beginning of society to have an order in which there was not some sort of landlord present as an agent in production. At the first moment any part of the existing land comes to be wanted by more than one person, at that moment it acquires value, and takes on the character of an economic good. Some one then inevitably appropriates it in order to reap the advantage of its superior desirableness; this some one may be an individual per-

son or the community as a whole; but, whether one or the other, we will certainly have to secure his participation before we can utilize the land as a factor in production. Such was the course of events in early societies, and such will always be their course. Undoubtedly we can if we like substitute public for private landlords; but, private or public, the landlord is a necessary agent in production, and we can never get rid of him.

In saying that a landlord is present in every productive act, we do not of course mean to imply that he always exists as a distinct person. The land factor, as we have pointed out, is a different thing in its nature and in its contribution from the labor factor. But this is not to say that the land and labor cannot be controlled simultaneously by the same person. On the contrary, it is very common for the laborer to furnish his own land and for the landlord to perform his own labor—a perfect example being that of a farmer or gardener who tills the soil he himself owns. Nevertheless, in admitting the presence of the two agents in the same person, we by no means reduce the two agents to one. To the extent that a man labors, he is a laborer, just as if he owned not a foot of land; and, for all the land he furnishes, he is a landlord, just as if he performed no labor whatever.

3. The third agent in production is the *capitalist,* the individual who furnishes intermediate goods or its equivalent in money funds to be used in carrying on a business. The capitalist does not labor; he does not furnish land; neither does he take any responsibility for making the business go, nor place in risk the principal of his capital or the payment for its use. The capitalist simply *waits,* or furnishes waiting-power which makes possible the institution of roundabout methods of production. The use of "capitalist" in this definition is highly technical, and subject in some degree to the charge of arbitrariness. But it is no more so than the best of the others which we might adopt; and hence, for its practical

utility in the further analysis of our subject, we shall regard it as correct.

The capitalist may, to be sure, exist in the same person as the landlord and the laborer. Men who own buildings and machinery very frequently own the land upon which they operate, and also, as laborers, attend to the operation of these intermediate goods. The farmer is the most obvious of many examples of a man who is capitalist, landlord, and laborer in one.

But, while we recognize the possibility of a common residence for the different agents, the emphasis, especially as regards the capitalist and the laborer, should perhaps be placed on a contrary tendency. In a state of primitive industry, laborers almost universally own their tools, and men who own tools are also the wielders of them. But modern conditions of production tend more and more to separate the two agents. The amount of capital required for a modern business undertaking is very great, thousands of dollars often being invested in a machine which a single laborer can operate. The ordinary laborer cannot by any effort of saving accumulate so much capital as this, and accordingly the saving is and must be done by other people who perhaps perform little labor in the ordinary sense. And even when laborers do save something from their incomes, the accumulations seldom make them masters of the particular tools they use. Their money is deposited in a bank, and, by a process to which we shall give more attention later on, establishes them as part capitalists in concerns other than those where they are employed, and usually in concerns of which they have no knowledge.

But, even if there were no such tendency as the one just described, even if the three agents existed usually in the same individual, this fact would not, in our logical analysis, reduce the three agents to one. In so far as a man labors he is a laborer; in so far as he furnishes land, he is a landlord; in so far as he furnishes waiting power, he is a capitalist.

4. The primary, central factor in production is responsibility-taking; hence the primary, central agent in production is the person, natural or legal, who supplies this factor. Adam Smith (1776) called this person the undertaker, a designation now out of vogue. Recently some writers have taken to using a newly-coined term, enterpriser. But most writers using the English language nowadays employ the French equivalent of Adam Smith's term, the word *"Entrepreneur."*

The *Entrepreneur* is the agent who assumes responsibility in productive undertakings. If our analysis of economic factors has been understood, little further exposition will be required at this point. The entrepreneur is not a laborer but an employer of labor; he is not a landlord, but a renter of land; he is not a capitalist, but a borrower of capital. He rents from the landlord, borrows from the capitalist, and hires a body of laborers; and, marshaling together the elements obtained from these, he institutes production.

It should be remarked, however, that the division of functions cannot be so precise in the case of the entrepreneur as in that of any other agent. Even as entrepreneur, he cannot divest himself of functions which, from their nature, seem to belong to labor or capital. It is true that most of the labor furnished by some entrepreneurs could usually be performed quite as well by laborers they could hire. In respect to labor of this sort, therefore, the entrepreneur is merely a laborer. But certain duties he can escape only by ceasing to be an entrepreneur, for example, appointing the higher director or managers of the business, and making certain final decisions with respect to the conduct of the business. These acts constitute labor as we ordinarily understand it, the putting forth of personal effort. Yet the entrepreneur does not therefore classify as a laborer; for these acts cannot be performed by a true laborer, but are inseparable from his functioning as entrepreneur; in performing them he is not less, but rather more, of an entrepreneur. A similar complication arises in the furnishing of capital. An entrepreneur may and usually does put

some of his own capital into a business. With respect to that capital, he may be thought of as both capitalist and entrepreneur. By means of it, he is in part furnishing the service of waiting necessary to the conduct of the business. He, therefore, credits to himself interest on this capital just as he would pay it to a lender. But the same capital serves in part as the basis of his power to perform his distinctive office as entrepreneur, that is, assuming the responsibility and risk of production. He, therefore, expects the entrepreneur's remuneration on this capital, in addition to the interest he receives on it as a mere capitalist. In other words, in respect to that portion of the capital which he himself supplies, he is both capitalist and entrepreneur, and gets pay for both types of service.*

It is sometimes necessary to distinguish different kinds of entrepreneurs, namely, the individual and the collective entrepreneur. The term individual entrepreneur, as an entrepreneur existing in a single person, sufficiently defines itself. The collective entrepreneur may exist in any one of the legal business entities such as the Partnership, the Joint Stock Company, or the Corporation.

In the case of industries undertaken by corporations, the corporation as such, the collective unit, is from the standpoint of formal logic the true entrepreneur. But cautious interpretation is here necessary. The corporation, acting through its usual organs, the president, secretary, and general manager, cannot be the entrepreneur, because these organs are created by a more fundamental power, the board of directors. Again, the corporation acting through the board of directors cannot be the real entrepreneur, because that body is created

* In this analysis, if the entrepreneur gets fifteen per cent. on the investment, five or six of this must be reckoned as interest, only the remainder as true profits. In practical business, it is more usual to think of the whole fifteen per cent. as profits, though most business men would at once admit the theoretic propriety of dividing that fifteen per cent. into different parts: true interest, true profits, and, usually, wages.

by a power still more fundamental, the general meeting of stockholders. When at last we reach the general body of stockholders, acting in the way prescribed by their charter for the decision of vital questions, we are in the presence of something which may fairly be called ultimate,—there is nothing behind to determine its action. This general body of stockholders, therefore, should probably be recognized as the true claimant for the title and functions of entrepreneur. In some respects, on the other hand, the stockholders as a mere aggregate of individuals seem best to deserve the title; particularly at the *starting* of a corporate undertaking, the question of whether or not the industry shall be carried on at all — the taking of ultimate responsibility for production — rests with investors as *individuals,* not with the body of stockholders formally organized. Accordingly, for some purposes we have to locate the entrepreneur of a corporation in the stockholders formally organized, while for other purposes we must recognize this agent in the mere aggregate of stockholders.

Finally, we must say of the entrepreneur what we have said of all the other agents, that he does not necessarily exist apart as a separate individual, natural or legal. Illustrations will at once occur of men who are entrepreneur, capitalist, landlord, and laborer all in one. In fact, there probably never is in the real world any such complete separation and specialization of the different agents as might be suggested by the foregoing analysis. But, in any case, the point already much emphasized must be remembered, that, even where all agents exist in a single person, they are logically distinct, *because their functions are distinct.* As a laborer, the man labors; as a landlord, he furnishes land; as a capitalist he furnishes waiting-power; and as an entrepreneur he furnishes responsibility-taking, an element which includes a small residuum of labor and waiting.

To conclude this discussion let us repeat what has before been clearly hinted at, regarding the relation of the different agents. The co-operation of all the agents is required in prac-

tically all productive undertakings; and, since there are no degrees in necessity, it would be incorrect to say that one is more necessary than the others. Nevertheless, the last agent discussed, the entrepreneur, does stand in a peculiarly significant relation to all the others and to the product. In a sense, he merely employs the other agents as his auxiliaries, and he is responsible for the product. Hence, in the ordinary way of thinking, we esteem him as more important than the other agents. In recognition of this judgment we shall call the entrepreneur the producer *par excellence,* and where "producer" is used in the later pages of this volume without qualification, it will be an entrepreneur whom we have in mind.

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ILLUSTRATIVE PROBLEMS.

1. "In co-operative production (meaning production in which the workmen own the business) the place of the *entrepreneur* is taken by a manager elected by the workmen."—Text-book. Criticise. How *is* the entrepreneur constituted in co-operative production?

2. "Today, all over the land, masons, hod carriers, carpenters, and so on, are building palaces which other people are to live in. When socialism triumphs, all this will be changed. The worker, no longer robbed of the fruits of his labor, will himself occupy the palaces he builds, wear the broadcloth he makes, and eat the choice viands he produces."

(a) Does justice require that the worker should have the right to consume the particular object he expends effort on? Explain.

(b) If it did, would the *particular* set of workers—masons, hod carriers, carpenters, and so on—who construct the palace have the exclusive right to enjoy it? Explain.

(c) Show that other persons besides "workers" in the sense here used have supplied conditions necessary to the existence of the palace.

3. Until recently it was usual to teach that the peculiar function of the entrepreneur is to *manage, direct,* industry. One feature of modern industrial organization almost compels us to reject this idea. Explain.

4. "Postponing consumption so that production may be carried on in a roundabout way is the function of the capitalist."—Text-book. Explain and illustrate.

5. Why do we say that every stockholder of a corporation is an element in the corporate entrepreneur while a bondholder, who also has capital in the concern, is not?

6. Not many years ago Mr. W, after some months of painstaking negotiations, induced a number of persons owning certaia lands on the Copper Range to join with him in organizing a corporation to build a railroad, open mines, etc.,—Mr. W putting in some land of his own. For his fee, Mr. W was to receive a certain number of shares in the stock of the company.

Distinguish with explanations the two economic roles played by Mr. W in this matter.

CHAPTER V

GENERAL CONDITIONS OF PRODUCTIVE EFFICIENCY

Production, as we have seen in the preceding chapter, is accomplished by the united action of several different factors. Productive efficiency, the subject of the present chapter, means a condition or state of economic production in which the employment of a given quantity of these different factors results in a relatively large or desirable product.

That a high degree of efficiency should be maintained is, of course, directly to the interest of the entrepreneur in charge of any industrial enterprise. But it is also to the interest of every person in the community. By the very first principle, formulated in Chapter II, every person (or community) in a co-operative order such as ours, tends to gain from any increase in the economic efficiency of other persons or communities with which economic relations are maintained; and, directly or indirectly, every person in our system maintains such relations with every other person. Doubtless the extent to which individuals profit personally from such efficiency is subject to great variation; but we can scarcely conceive of any one so situated that he would not gain something. It becomes pertinent therefore to make some inquiry into the laws and principles under which production may attain, and remain in, a state of high efficiency.

At the outset of this inquiry, however, it should be noted that Economics does not attempt an exhaustive investigation into the *technical* conditions of productive efficiency. In its study of agriculture, for example, it does not concern itself directly with fertilization, drainage, and rotation; nor, in its study of manufacturing, does it touch upon power generation, the choice and placing of machinery, and the like. These

problems lie rather within the special province of the technical arts themselves; they are problems of agriculture and manufacturing, not of Economics. The field of Economics lies deeper. It embraces the more general principles which underlie and govern the purely technical phenomena of all the arts alike. Let us begin with a broad survey of these principles, and continue with a more particular examination of some of them in their relation to the different economic factors.

1. Capitalistic Methods

One clearly established principle is that industries can usually increase their productive efficiency by the introduction of *methods which employ a large amount of capital.* Methods using some capital are probably without exception better than methods using none; and, as a rule, methods using much are better than those using little.

In our day practically all production is capitalistic. There are to be sure marked differences in the degree to which capitalism is carried in various industries. Some industries, from their very nature, seem able to use more capital than others located in the same city or country; and the industries in one city or country may, in general, use more than those in another. But, however great these variations, the fact remains that most industries can use all the capital available, and the more they use the higher is the productive efficiency to which they attain.

The principal explanation of this increase in efficiency was brought out on page 51. Through the roundabout method, men are able to reinforce their own powers with the powers of nature, and thus to rearrange the materials upon which they work with relatively greater speed and precision. In the beginnings of industry, when the primitive fisherman, for example, made a net and a boat to use in catching fish instead of depending on his naked hands alone, the gain in efficiency was enormous; and even in later stages of industrial develop-

ment some invention like the steam engine, the dynamo, or the cotton gin gives to our productive efficiency an increase startlingly great. These facts would seem to be so familiar as to need little comment. Still they are not infrequently overlooked in times of popular excitement; and legislative measures are adopted and enforced which discourage the accumulation of capital or drive it out of the community. It was needful, therefore, that the point should receive some emphasis.

2. Specialization

We saw in Chapter II that the present economic order is one of heterogeneous co-operation, wherein each person specializes; and that each individual in the system finds this specialization advantageous because it enables him to enjoy more goods and a greater variety of goods, and goods of better quality than he possibly could if he attempted to produce everything for himself. Now, of course, the primary reason why specialization enables the consumer to consume more and better goods is that it enables the producer to *produce* more and better goods. We have thus already clearly implied that specialization is one chief source of productive efficiency. Let us now consider this point a moment from the producer's standpoint as we formerly did from the consumer's.

In the first place, specialization utilizes *all* agents and instruments of production, even the inferior ones. It splits up our complex industrial processes, dividing the small tasks from the great; so that a person who cannot perform a whole process, because he is incapable of doing the difficult part of it, may nevertheless contribute something to the whole because he is capable of doing the easy part. Thus a boy who would be quite helpless as the manager, machinist, or salesman of a concern, may make himself very useful running errands. On the other hand, specialization utilizes superior instruments and agents *most fully*. A steam locomotive designed for pulling forty or fifty loaded freight cars across the country at thirty

miles an hour is kept constantly moving in that service, while lighter trains in the terminal are handled by locomotives of smaller power; a skilful surgeon need not trifle away his time at mowing the lawn or going to the newspaper office for his paper—he can abandon those tasks to inferior agents and devote all his skill to dangerous operations in the hospital.

Specialization *utilizes natural aptitudes,* especially in the land and labor factors. A man endowed with a mechanical genius is kept busy at mechanics, instead of being required to cultivate corn; and land that will raise fifty bushels of wheat to the acre is reserved for that valuable product instead of being given up in part to forestry or grazing. Specialization also permits the development, in the labor and capital factors, of *artificial aptitudes.* A pianist can greatly improve the flexibility of his hands, and consequently his skill as a player, from the fact that he is permitted to refrain from heavy manual labor and spend long hours at finger exercises on the keyboard. About the only implement the primitive man possessed was the knotted stick, and he could use it to destroy his enemies, to grind his corn, to pillow his head at night, and for numberless other purposes. But, viewed from the modern standpoint, the implement was not *well adapted* to any of those purposes; and specialization has given us thousands of different implements, creating in each a special aptitude for one kind of work. Again, specialization *economizes in time* for men and machines, since it eliminates the loss, often very large in the aggregate, of changing from one task to another. It also shortens the period of apprenticeship or education: a man can learn to be a skilful mason more quickly than he can learn to be both a mason and a carpenter. Finally, specialization stimulates invention—a man devoting himself completely to one particular job and learning all the niceties of it will find more ways of improving his performance than a man working now here, now there, on a dozen different jobs.

We have just seen that specialization contributes greatly to productive efficiency. It follows that the full realization of any condition requisite to such specialization must contribute to productive efficiency. Now, as pointed out at the very beginning of our study, one such condition is *exchange;* under the present system, specialization and the co-operation it involves is made possible chiefly through exchange. That is, in order to take advantage of the principle that specialization increases efficiency, we must exchange products with one another. It follows that the degree to which this specializing can be carried depends on the extent of our exchanging. If we trade with only a few people, the need for a single kind of goods will be too small to justify any one of us in producing that kind only. Thus, the man who calls himself a barber in a small town can do most of the barbering which his neighbors require at night and on Saturday afternoon; and the rest of the time he must fill in as he can mending shoes, soldering tin pans, or lending a hand on odd jobs at the garage. He cannot specialize in barbering, or in any one of his other trades, because the amount of service wanted by the community with which he exchanges is not large enough to keep him busy. Hence we have the following:

Principle. *The extent to which productive efficiency can be increased by means of specialization varies directly as the extent of the market.*

The foregoing principle suggests one of the chief reasons why economists as a class are free traders. They favor the utmost possible freedom from restrictions because this allows the largest amount of co-operation and thereby enables everyone to benefit most completely by the productive activity of every one else. All economists, of course, would admit that free trade in some commodities is more important than in others, just because trade of any sort in some commodities is more important than in others. An import duty on hay would

for some years not affect us one way or another—it would be a mere futility, since we do not normally buy much hay outside our country. Any departure from freedom in steel goods, textiles, and sugar, on the contrary, is sure to have notable results, because we would naturally import those things in large amounts. But, whether we deal in a commodity much or little, the privilege of trading without restrictions when we see an advantage will conduce to the productive efficiency of all the countries concerned. Hence the following corollary.

Corollary. *High productive efficiency depends on a large amount of freedom of trade.*

Illustrative Problems

1. In most economic text books, one meets the phrase "geographical division of labor."

(a) What do you suppose it means?

(b) Give some illustrations of it.

2. Give some examples of recently developed labor specialization,—if possible from your own observation.

3. Same as Problem 2 for capital.

4. Why is it that a country store keeps a little of everything, while a city store very often deals in only one kind of commodity, *e. g.,* shoes or china or sporting goods.

5. It is sometimes said that nowadays almost everything is produced for a world market.

(a) What is one of the greatest gains of having such a market?

(b) What are some of the most important industrial changes which have made it possible?

(c) Suggest one or two of the most serious evils which would naturally result from it.

2. Large Scale Production

It is a fact familiar to all of us that the extraordinary industrial progress of the last hundred years, and particularly of the last twenty-five years, has been accompanied by a great

expansion in the scale on which industry is conducted. On the one side, the total output of commodities has greatly increased, their quality has, in general, been improved, and their price lowered—so that today men who are considered poor may enjoy comforts which a hundred years ago would have been envied by kings. On the other side, we find that the establishments which produce these commodities are not so numerous as they were twenty-five or fifty years ago, but that the individual establishments now producing are in size, as compared to the old ones, very much larger. These two phenomena, it is generally recognized, have been in some measure related as effect and cause; our industrial progress has partly resulted from the enlarged scale of the producing operations. The big store, the big factory, the big railroad has been able to supply its particular product in greater volume, at much smaller cost, and often of much better quality. Large scale production has meant more efficient production.

Among the principal reasons for the superiority of large scale production are the following:

(1) Large scale production permits a great extension of the policy of specialization. That this policy greatly increases productive efficiency has already been brought out. The particular form of specialization which comes into our present topic is that which manifests itself *within a single industrial establishment.* In such an establishment, when the scale of production is sufficiently large, each man or each machine may take only some very small step in the total process. In a great automobile factory where thousands of cars are constructed every day, it is feasible to install a machine for stamping out a single, very small standardized part of the car, because the number required is so great that the machine can work steadily all day, and probably all night at that one unvarying task; whereas, in a small factory such a machine could be kept running only a few hours per day and so, owing to the expense of installation and upkeep, its use would

not be feasible. That large scale production makes possible this extreme application of the policy of specialization is thus one great reason why it increases productive efficiency.

(2) A second important reason for the connection between large scale operations and productive efficiency is the fact that large scale production secures *economy* in the use of different factors or instruments. Two phases of this principle should be noticed. (a) At certain points specialization has to be carried almost as far in the small concern as in the large one; and the large one permits a *fuller utilization of the specialized factor.* Thus the country store at Four Corners is obliged to employ at least one clerk, although in the long intervals between customers he spends three-fourths of his time whittling the nail keg; in a city department store in contrast, most clerks are continuously busy waiting on customers. A railroad company producing transportation between New York and Boston is obliged to lay and maintain at least one line of track even if, owing to the competition of other lines, it runs only two trains a day; but if the road conducts a large business, the same single line of track can at a very slight increase of expense be utilized by dozens of trains.

(b) A second manifestation of the economy of large scale production is to be found in the fact that, while each producing concern has to keep in its stock of raw materials, tools, and finished products some *reserves to meet contingencies,* the reserves of a large concern are sure to be relatively much less extensive than those of the small concern. If there are four haberdasher stores in a town with an adult male population of one thousand, each store will need in the spring a stock of straw hats perhaps 50 or 100 in excess of its probable sales. A single large store, replacing the small ones, and with probable sales as great as all of them together, would need contingency reserves but little greater than any one of the four.

(3) Again, large scale production makes it possible to utilize *waste products.* A familiar illustration is that of the

great packing houses where various portions of the slaughtered animals which, taken in small quantities would be worthless, accumulate to such an extent that the total has considerable value, and can be used with profit. Where cotton is ginned at a small plant, the seed extracted from the fiber is thrown away or destroyed; but large ginning concerns develop from the seed important by-products, oil and meal. The total amount of such economies effected by large industries is enormous, though a small plant, in attempting to utilize similar waste, would spend more than it would save.

(4) Finally, large scale production insures better bargains when a concern comes on the market as a buyer or seller. A large concern can buy its supplies more cheaply than a small one, because the seller, under competition, is willing to accept a relatively small profit in order to close the large transaction; or, more important, he can often sell goods in large quantities at a smaller rate without lowering the profit, because the expenses connected with the large sale—the selling effort, the clerical work, the packing, the transportation—are relatively lower than those connected with the small sale. In selling its product, on the other hand, the large concern has corresponding advantages over the small. Just because it produces more efficiently, it can sell at a lower price and yet obtain quite as high a profit. And, by means of its superior selling force—its salesmen, its advertising, its show rooms and so on—it can usually outsell small concerns at the same level of prices.

As a qualification upon all the comments made above, it should be noted that industrial units have an indefinite, but none the less real, limit to the size at which they can be effectively worked. The limit is high in some industries, like manufacturing, because the restricted area covered by manufacturing operations makes supervision of the workmen easy. It is low in other industries, such as agriculture, for the opposite reason. The organization unit, the unit having a single

managerial, clerical, and buying and selling force can, it often seems, be enlarged indefinitely; but it is in fact limited by the organizing abilities of business men in the time and country where the unit seeks to operate—a concern may become so large that the securing of honest and efficient management is well nigh impossible. The physical unit of production, the plant, will of course reach a size beyond which it cannot profitably be increased much earlier than the organization unit.

4. Integration of Industries

In the preceding sections we have discussed the conditions of productive efficiency with regard to which there is much confirmatory experience and little difference of opinion. In this and the following section, we meet two alleged methods of increasing efficiency which are of more recent origin and, in many minds, of doubtful value. One of these methods, which has been named the *integration of industries,* consists in bringing together under one control many industries which, though dissimilar, are *interdependent.* Thus the steel producer does not confine himself to the single process of converting pig iron into steel. He undertakes also to maintain a plant for making pig iron from the ore, and another one for getting the ore from the mine; he may in addition own and operate coal mines and coke furnaces to obtain the fuel he needs; and may construct railways to transfer his various completed or partly completed products from one plant to another.

One reason why this integration promotes efficiency is that it enables the producer to realize more fully the gains natural to large scale production. Another reason is that it secures a variety of economies, due to the complemental nature of the industries integrated, particularly in that each of these industries, save the lowest, provides a market for the product of some other member of the series, and thus saves the expenses of selling and diminishes the risk burden. The production of

steel, which furnished the first great application of this method has been and still is eminently successful; and numerous other industries have in late years adopted a similar practice with favorable results.

5. Unification of Industries

A very characteristic development of industry during the last twenty years, particularly in the United States, is the coalescing of many hitherto independent industrial units *of the same kind* into a single all-inclusive unit. Such units are commonly known as *trusts* or *combines*. The practice illustrated in their organization is contrasted with that just described under Integration, in that the latter combines *dissimilar,* though interdependent, units, while trusts combine *similar* units. An integration puts together coal mining, iron mining, pig iron making, and steel making. A trust puts together the American Steel Company, the Carnegie Steel Company, and the Illinois Steel Company.

Evidently the formation of a trust must in most cases realize one of the conditions already considered, largeness of scale in production, and hence it must so far tend to increase productive efficiency. Thus, a combination bank which takes the place of five independent banks, will be five times as large as the average of the five, and its efficiency will be much greater than five times the average.

But, secondly, the combination unit will naturally have some advantages not necessarily belonging to an original unit of equal size, derived from the very fact that it is the result of combination,—that it has *grown out of a variety of sources.* For different ones of the combining units may have developed specially efficient methods or machines which, hitherto kept as trade secrets, will be much more fully utilized under the combination. In an equally large unit which was a single unit from the outset, many of these methods would perhaps never have been developed.

A third possible ground for expecting greater productive efficiency from the trust or combination is to be found in the fact that such a combination secures partial or complete monopoly in the industry involved. This condition is without doubt very objectionable on a variety of grounds. But we are here concerned only with its relation to efficiency; and, while there is room for controversy even on this side of the matter, the consensus of informed opinion would seem to be favorable to the claims of the trust.* The chief ground on which greater efficiency is claimed for monopoly is that it makes possible a number of economies which are not possible under free competition.

(1) A big firm with no competition can diminish its advertising, reduce its force of salesmen, and, in general, cut down all the expenses of marketing its product. This is equivalent to saying that the firm can produce its goods—from raw material to consumption stage—with less effort and at less cost, and therefore clearly means a gain in efficiency. (2) The monopoly can have plants in all parts of the country, and fill orders from the particular plant nearest the consumer, thus minimizing the costs of transportation. (3) The monopolist need not seek to adjust production to his *possible share* of a considerable demand,—a quantity very difficult even to approximate—he can adjust it to the whole demand, a quantity which can often be ascertained quite exactly. He thus incurs less risk from loss, and in so far as that risk is a cost of production he is enabled to produce more efficiently.

It should be evident from all the above discussion that combination, whether it results in monopoly or not, belongs, on many important grounds, among the conditions with which this chapter is concerned. We are therefore probably justi-

* Perhaps the best proof of this is the tendency of all the great industrial nations to favor the formation of trusts (syndicates, cartels) as necessary to the maintenance of their position in the competition for the trade of the world.

fied in saying that, *generally speaking, mere technical efficiency is usually increased by the consolidating of like industries under one control.*

Illustrative Problems

1. Some of the big farms of East Prussia have their own little railways, locomotives, cars, etc. What advantage of large scale production does that illustrate?

2. Suppose that the five banks of Ann Arbor were to be united into one and that, while each of the uniting banks employs a cashier, a teller, a book-keeper, and a messenger, the consolidated bank were to employ a cashier, a paying-teller, a receiving teller, a discount-clerk, a collection-clerk, a head book-keeper, an assistant book-keeper, and a messenger. Show that the facts as stated illustrate *two* gains of large scale industry.

3. "If the four or five dry-goods stores on Main street were united, a great saving in the fund of circulating capital required in that business would be effected."

(a) Argue for the truth of the quotation.

(b) Show that the new plan would probably effect a saving in *fixed* capital also.

6. Industrial Freedom

The last quarter of the eighteenth century found most of the western nations dominated by governments which exercised a very complete despotism not only in respect to matters commonly regarded as well within the scope of political action, but also in respect to economic matters. The trade or occupation which each individual might enter was prescribed from his birth; the period to be spent in apprenticeship, learning the trade, was likewise already arranged; and, when he became a qualified workman, the amount and kind of goods he might produce and the remuneration he might receive for it were not determined by his will or choice, but by the law. Manufacturing industries also were regulated in the minutest

way; the kind of materials each establishment should use, the amount of materials it should devote to each unit of product—for example the number of threads in a square yard of cloth,—and the quantity of product it might finish in a given time, were rigidly fixed. And, to insure observance of the laws, inspectors were always on hand who exacted penalties with the greatest severity.

In its beginning this excessive interference with the spontaneous course of industry was probably justified; it had the negative effect at least of preventing labor and labor's output from falling below a certain standard. But there early developed among business men and thoughtful students a distrust of such interference. It was not only annoying, they thought, and inconsistent with principles of personal right and liberty, but it actually hindered the attainment of the result at which it was aimed. Nations intended to make themselves efficient and rich, but by the very means employed for this end they destroyed their efficiency and so became poor. For various reasons, near the close of the eighteenth century or in the early years of the nineteenth, the latter notion came to be widely accepted and incorporated into government policy. As a result of this change, or as a result of it in combination with other forces, industry thereafter advanced at a quite unparalleled pace. Hence modern economists have come generally to hold the opinion that, whatever objections there may be to it on other grounds, industrial freedom undoubtedly contributes to efficiency.

Freedom of *trade* we have already discussed from this view point. It widens the market for each individual's goods, and thereby encourages that *thorough-going specialization* which contributes so greatly to industrial efficiency. The freedom of individuals to choose their own occupation and to produce according to self-set and market-set standards, has advantages no less important. In the first place, it tends to give industrial forces a *direction* which will naturally result in

the greatest productivity. (1) As a rule, the individual himself is better able than any one else to decide what he is fitted to do, or at any rate what he can do with keenest interest and a good will; hence in occupations freely chosen, both aptitude and interest will guide him in the production of more and better goods. (2) By producing the things for which he is best fitted, a man confers the greatest number of utilities upon society at large, for whom the things are produced. But, conversely, when society comes to obtain these things by exchange from the producer, it also confers the greatest number of utilities upon him. Hence, if a man is free to choose, he will have not only the motive of workmanship pleasure, but also that of economic gain, for turning his energies into the most efficiently productive channel.

Second, and no less important, is the fact that under a regime of freedom men are spurred on by the *stimulus* of competition or emulation. That a man has the privilege of making any product for which he discovers an aptitude, and of selling the product so widely as to gain a great profit if he can make it well enough,—that he may hope, on the one hand, to gain almost anything if he works efficiently, and that he is in danger, on the other hand, of losing to others almost everything if he does not so work,—these are conditions which call forth the most strenuous efforts of most men. Finally, there are certain moral qualities generally recognized as requisite to good workmanship—self-reliance, decision of character, energy, industry, and so on—which are naturally best developed under conditions where the individual acts on his own initiative, not like an automaton under the guidance of an outside power.

It must be admitted, of course, that the general truth here set forth has, like most others, numerous limitations. Advocates of non-interference have always recognized that some governmental oversight of industry is necessary to secure the very liberty which they wish to see prevail, since one individ-

ual may become so strong and so ruthless in the use of his strength that he will restrict the liberty of other individuals. On this ground, governmental action has in our day been extended very far—in the control of monopolistic combinations, for example—and that with the approval of most economic thinkers. Further, experience under the *laissez faire* regime has shown that the industrial efficiency secured by some forms of freedom may be purchased at too high a price. Excessive labor of women and children, physical injuries from improperly guarded machinery, and kindred evils, have called for and secured much remedial legislation. At the present time, there still remain many abuses incident to great industrial liberty the correction of which is perhaps more important than the high efficiency to be derived from that liberty. It is probable therefore that for some time we shall see not less, but more, governmental interference along these lines.

In addition to these purely restrictive forms of interference, there are others of a more positive nature which a government may sometimes engage in with results undoubtedly beneficial to industry. By its grant of franchises, a government encourages the building of railroads, thereby giving to industry all the benefits of easy transportation—especially a wide market—and its dredging of harbors and digging of canals contribute toward the same end. In a new field of activity where there seems to be a lack of private initiative, the government has investigated industrial methods and offered itself, more or less informally, as an instructor. The agricultural experiment stations is an illustration, and the free bulletins and weather reports supplied to farmers. There has developed also in very recent years a strong movement for vocational direction, which aims, not to determine people's occupations for them by authority, but, by expert study of personal aptitudes and of accessible occupations, to *help the individual choose* the work in which he will be most successful. In all these lines, also, it is probable that the future will bring

rather an increase than a diminution of governmental activity.

Admitting all these limitations, however, the statement that non-interference contributes to efficiency still holds good. The needed control, on the one hand, and the patronage or instruction, on the other, should be kept at a minimum, and should be carried out with care and discretion. *In general, industrial efficiency is greater under a regime of freedom, non-interference, laissez faire, than under one of much governmental regulation.*

CHAPTER VI

EFFICIENCY OF DIFFERENT FACTORS

The preceding discussion has set forth the more general principles of productive efficiency. It still seems desirable to take up separately the different factors concerned in production, and ask how efficiency is best secured in connection with each of them. Let us begin as we have in earlier analyses with the labor factor.

Section A. The Efficiency of Labor

If the particular contribution of labor to productive processes is the power or force to arrange nature's materials, then labor will be efficient which arranges those materials relatively well. It remains to inquire what characteristics will enable labor best to exert its force, and how those characteristics may be secured.

The first essential of the labor factor is mere physical strength and endurance, the ability to put forth a relatively large amount of force at any one moment, and to continue such exertion for an extended period of time. The sources of such strength are fairly well known. They are in part racial, evidently, since the workmen of one race average much higher in bulk and brawn and physical power than those of another race; they are in part matters of a narrower family inheritance, since, of two workmen of the same blood strain, one may exhibit capacities greatly in excess of the other. But with these causes we are not particularly concerned in the study of economics. What we are concerned with is the fact that of two men of equal natural endowment, one may supply much the greater force; and, the reasons of this can generally be found in the superiority of the food he eats, of the house he occupies, and the generally sanitary and helpful conditions

under which he lives. From this it is but one more step to the final answer of our question. How do men come by the material goods necessary to enable them to lead the kind of life most conductive to physical fitness?

Our present economic order being one of exchange cooperation, most goods are obtained through exchange from others. But, in such an order, the amount of goods each man gets will be affected by the amount of goods he himself produces and offers in trade, and, on the other hand by the amount produced in the group with which he exchanges. Hence, the limitation of the goods that can be enjoyed by each man is set by the productive efficiency of the group. Men's real incomes, and consequently their physical strength may, then, be said to depend on an observance of the general laws of productive efficiency set forth in the last chapter—capitalistic, large-scale, *laissez-faire* production and all the rest. That this should be true, from *a priori* considerations is easy to see. But it could also be shown by a study of industrial history and sociology that the living conditions, and so the physical fitness of workmen has uniformly been far superior in those countries where these laws of productive efficiency have been observed than in countries where they have not.

A second characteristic of the labor factor is mental power. Mental power is important first as the director and the source of skill for mere physical strength; if one does nothing but pick up sticks it is better that he pick them up in an intelligent and clever manner. The need for skilled craftsmanship seems smaller in our day than it formerly was, because the man who once made a complete object with his own hands, tends now to be replaced by the man who makes only a very small part, and that by means of machinery. Nevertheless, the skill that was once needed for the direction of one's hands is now the more needed for the care and tending of the complicated and delicate machines. But there is a further use for mental strength in the labor factor. In our analysis of pro-

duction we defined labor not as physical force only, but as any and all kinds of exertion, including the higher intellectual forms. Exertion of the mind is itself labor. In our present system of large scale, highly capitalized production, the purely intellectual exertion of the promoter, the manager, and other agents is the most important labor of all. And so, for such labor, there is special need in the laborer of unusual mental power.

Disregarding natural gifts, men acquire mental power chiefly through the processes of training or education. The first prerequisite of such acquisition is the desire of the individual; and it often seems that where this desire is strongly present it will carry one over all obstacles to the goal. Of this point we shall speak further in a moment. But for the masses of mankind, something else is needed, a something of more concern in economic studies, because it can be provided by economic means. Perhaps the clearest economic source of mental fitness will prove on examination to be identical with that of physical fitness—productive efficiency. For most of us it is necessary first, that training facilities be provided, free and accessible, if not compulsory, and that, second, the immediate problem of sustaining life should not press upon us too hardly, but leave us leisure and strength for self-improvement. But, clearly, these two requisites will be most fully met in a state of high productive efficiency. A country efficient in production will be a wealthy country; and, other things being equal, a wealthy country will have more abundant means of education, with more opportunity for their enjoyment by its citizens, young and old.

A third characteristic essential to the effectiveness of labor may be broadly named as willingness or ambition. However great men's natural endowment of body and mind, and however excellent their opportunities for development, labor will always be ineffective if it lacks in the quality of willingness.

The willingness to work depends primarily, no doubt, on a general attitude of mind which makes the possession of economic goods, the sensation of much-having, an experience worthy to be striven for. Occasional rare individuals with a taste for simplicity prefer to unburden themselves, as they conceive it, of all material things except the bare necessities of life; and, if in addition they are preoccupied with some idealistic pursuit, they will naturally show little inclination to perform economic labor. Likewise certain oriental peoples and religious sects regard serenity of mind and contemplation as more to be desired than any amount of material wealth. Among western peoples, however, a natural taste for economic goods seems all but universal. So far as willingness to work depends on a desire for the fruits of work, they are willing enough.

The next requisite for willingness or ambition is the availability of goods worth buying. A frontier settler, or a peasant in the interior of China, however keen his craving for enjoyable goods, will not greatly exert himself, he will raise only what he can consume and will in general tend to become a shiftless no-account, unless the products of more civilized communities are within buying distance. But the only stimulus needed for these peoples is productive efficiency in their neighbors, and improvement in the means of transportation and exchange. Thus certain Eastern countries have even in this generation become keen, active producers, mainly because Western nations brought to their doors commodities which they wanted, but which they could not have unless they produced, for exchange, something wanted by the Western nations.

Given a natural taste for material goods, and a stimulation of that taste by the presence of such goods, there is still often something wanting to induce willingness to work. That something is an assurance that, having worked, one will be allowed to consume a quantity of goods proportionate to the

effort put forth. In other words there must, ordinarily, be some guarantee of the reward. Now, in the existing economic order, the amount of a man's reward is for the most part determined automatically, by the process known as *distribution*. Whether his reward, as so determined, is proportionate to the effort put forth, may therefore much better be reserved for a later part of our study. In some part, however, the assurance of one's reward has its source quite outside the realm of Economics proper. It springs from a general confidence in the moral integrity of the community where one lives and with which one maintains business relations. One must know that his neighbors are not going to steal his goods, whether restrained by their sense of right or by the policing activities of government. One must know that the government itself will not confiscate his property or drain him dry by exorbitant taxes, and that the government is able to defend him from invasion and robbery by foreign foes.

Section B. The Efficiency of Land

The land factor in production furnishes man with position on the earth's surface, with primary raw materials, and with natural powers. The question of land-effectiveness in its simplest form is merely, "how can nature supply man with most materials of the best sort?" So far as nature's own part is concerned, the question is easily answered—she can supply most by being rich, fertile, plentiful. But nature is passive, what she supplies is supplied once for all, or in a blind and purposeless way, so her "activities," if such may be called her mere existence, is hardly a matter for discussion. But from man's viewpoint there is much to be said. How can man realize the greatest amount of utilities from the existing natural supply?

Any given individual can do best for himself with nature's materials if he is free to command all he wants at any time he wants them. Nature's materials are most efficient for

me if I can, whenever the need arises, go out and cut down timber, dig ore, or plant grain on any selected piece of ground. But the viewpoint of particular individuals is not important here. *Considered absolutely,* land is most efficient when it is available for that man, among all men, who is qualified to derive from it the greatest product. There are several ways in which this fortunate availability might be secured. For example, a communistic form of government might parcel out various portions of the existing supply to individuals adjudged most competent. Another possible method is for free competition to determine who can produce most from each portion and then for a system of private ownership to reserve for that individual the exclusive use of the portion, free from the interference of others. The latter method is the one generally prevailing at present; it results in a high degree of land-efficiency, and as such will doubtless be preserved until one unmistakably better is found.

A system of free competition, private ownership and exclusive use can, however, be modified somewhat, and the land-efficiency thereby be enhanced. The condition of free availability for the most competent needs definition. Under some circumstances, land is most efficient if it yields all its materials at once and is thenceforth exhausted. A forest is most efficient for the pioneer and for all who will follow him, if he utterly destroys a large part of it to use for fences and firewood, and puts the denuded land under cultivation in small grain. But, generally, it is best that the large trees only be taken from a forest, while the younger ones are left to finish their growth, and to sow the seed of still other trees to follow them. In other words, nature will make the greatest contribution to productive processes in the long run under a policy of conservation. She will be most efficient through the years if she yields at no one time enough to diminish her future yield. But men, working under conditions of private ownership cannot always be trusted to persevere in such a policy. Where in-

dividual wisdom and self-restraint are insufficient, therefore, the interference of government to advise, and even to enforce, conservation will contribute greatly to the productive efficiency of land.

Section C. The Efficiency of Capital

A very little reflection will make clear that efficiency on the side of capital is conditioned chiefly by three things: an abundant stock, availability, and wise employment. The last of these depends mostly on the skill and capacity of the entrepreneur who determines what shall be produced, and so determines to what use capital shall be put. Accordingly, we are here concerned principally with the conditions which insure an abundant stock of capital, and which insure that the existing stock shall possess a high degree of availability.

1. An Abundant Stock of Capital

In dealing with the abundance of capital, the first problem which meets us concerns the *origin* of capital. By what processes does it come into existence? The answer to this has already been anticipated, but a special reminder in the present connection will be useful.

A piece of capital goods, if viewed simply as a physical object, has to be brought into existence in exactly the same way as consumption products, that is, through consciously directed labor assisted by land and capital. Just as certain factories are engaged in making hats, golf balls, candy, and other consumption goods, so certain factories are engaged in making engines, machines, tools, and other *capital* goods. At first sight, then, it might seem as if such a factory were the place to study the question "How does capital come into existence?" In fact, however, we are here interested in *something deeper than mere technical production*. We are looking for the ultimate origin of capital, the moral origin, so to speak. This is a legitimate question to ask with reference to any product; for,

under an exchanging economic order, the technical producer of anything, whether it be an engine or a pound of candy, is not, in the most ultimate sense, responsible for its existence. He produces that engine or candy because he knows or expects that other people will buy it from him. He is in effect, therefore, acting as the *agent of those people.* This is evident enough in production *to order;* but production for a general market is not essentially different, for it is possible only because experience has shown that it will work substantially the same as if production *were* to order.

Accordingly, if we wish to know the ultimate origin of capital, we must go to the principal rather than to the agent. The ownership of engines or other capital goods means the tying up of large amounts of value so that for an extended period they will yield income—service—to the owner only at *intervals* and *in small amounts.* Not everyone, therefore, can afford to buy and own such goods. How does the actual buyer of capital goods attain his ability to buy? In case the buyer is an entrepreneur merely, he largely borrows money to make the purchase, so that a further inquiry is necessary. How does the man who lends money to the borrowing entrepreneur reach a position where he can give up, say, $3,000 in cash in exchange for a yearly income of $150? The answer is plain. He must have accumulated a money fund which promised to be for a shorter or longer period superfluous, which was not needed for any pressing uses in the present.

The accumulation of such a fund requires two things, and the first is that a man must *get* money, must from some source derive an income. This is done, presumably, in the same way that a man obtains any income, by supplying either personally or through his property some service for which other men are willing to pay a price.

The second requirement is that the man shall *save* from his income, shall practice abstinence. In doing this, he may or may not suffer serious *deprivation*:—the saving may be very

difficult; or it may be so easy, in view of his large income, that he finds it less sacrifice than spending. But this consideration has nothing to do with the case fundamentally,—the essential point being that, deprivation or no deprivation, he does relinquish the right to spend for present satisfactions. It should be noted also that the saver may or may not retain his savings for long as a distinct money fund. He cannot spend them, in the popular sense of the word, for *consumption* goods such as food, clothing, excursions, and the like, which go directly and exclusively to the satisfying of present wants. But he can part with the money in exchange for engines, houses, or other income-bearing property; since, in doing that he merely invests the money, and has in reality as large a sum of wealth as ever. This is a distinction familiar to the business world; but it is frequently overlooked and so becomes the source of a popular fallacy about money.*

Bearing these distinctions in mind, the act or process of saving can have no deeper analysis. It is *just saving,* going without some gratification in the present which one might enjoy in the present if he chose. The capitalist receives a money income; he spends part of it consumptively, but refrains from

* Before leaving this point, *a word of caution* ought to be added. In insisting that capital has its origin in saving, we must not forget what has been brought out in another connection, that the supplying of capital involves, not merely the accumulating of a fund of money or credit, but also the actual, mechanical producing of the concrete or goods capital—the engines, cars, machines, etc. We cannot furnish power or carry ore or make nails with stores of money,—we must have real engines and cars and machines. Nevertheless, this way of looking at the matter, which fits the needs of technical production, gives us no light on the *origin* of capital. The technical making of any particular piece of capital does not originate that capital. As remarked above, the man who is really responsible for the existence of the capital is the one who accumulates the fund of money; and the conditions which he has to fulfil in accomplishing this disclose the fundamental nature of the process whereby capital comes into existence.

spending the rest—holding it as money or investing it; in consequence, he accumulates a fund with which he himself, or some one else to whom he lends it, can buy. engines or other productive goods. As economic society is at present constituted, this is substantially the only process in which capital grows: *get an income; save from that income.* But, since the existence of an income is implied in the saving from it, we may cover the whole problem in a single statement: under the *existing economic order capital originates chiefly in saving or abstinence.*

Illustrative Problems

1. Suppose that a community of say 50,000 persons living on an island, completely isolated from all other communities, but otherwise living under an economic system like ours, with division of labor, trade, metallic money, etc., should attempt to increase its capital by issuing $100,000 of paper money.

(a) Argue for the contention that, in general, we should expect this attempt to fail.

(b) Try to find some reasons for thinking that the scheme might realize a small measure of success. (Would said scheme tend to increase the total output of labor services? Would it tend to release any labor hitherto devoted to the old tasks?)

(c) Change the hypothesis by supposing the given community to be in free trade relations with many other communities, and argue that the proposed issue would really increase the capital of the community.

2. "When the primitive fisherman refrains from eating fish in order to accumulate a store to be eaten while he makes a net, we obviously have a case of real saving. But when a capitalist keeps his money rather than spending it, things are very different. The good things our capitalist refrains from consuming have not been made at all; instead, producers, knowing that capital is being accumulated, are making engines, cars, etc., which obviously could not be consumed. But, if

they could not be consumed, they could not be saved, such capital, therefore, does not result from saving."

Taking as your definition of saving this: "Saving is going without something one might otherwise enjoy," show that the capitalist who accumulates a fund of money does really save.

3. Suppose that, instead of proceeding as at present, the capitalist were himself to make the concrete pieces of capital, hoes, plows, planes, engines, etc., and then lend these to producers for hire. Would such making of capital involve saving?

4. Suppose that a communistic state, in order to increase its stock of capital, should proceed to require from every citizen one more hour of labor daily. Would this way of building capital involve saving?

We have seen that capital comes into existence chiefly through saving, abstinence—a deliberate relinquishment of the present disposal of income. What conditions favor the practice of this line of conduct?

One condition certainly would seem to be the existence of *large incomes.* It is very hard for people of small incomes to save anything, and hard for those with moderate incomes to save much; all they can get together is urgently required for their immediate wants. People with large incomes, on the contrary, are able to save with ease, simply because there remains a considerable surplus after their immediate, pressing wants have been satisfied. But what conditions are favorable to the existence of large incomes? Doubtless the most essential condition is the one we are discussing, namely, high productive efficiency. The man who produces by ineffective methods will naturally have but a small product, and hence will need to consume most of it for each day's sustenance. The primitive fisherman, equipped only with his pair of hands, commanded a very small income of fish; and so it was only with the greatest difficulty that, while feeding himself today, he could save anything for tomorrow. But, once possessed of a canoe and a net, the capitalistic method of fishing enabled

him to catch in a day far more than the day required, and hence to save from it much and easily.

A second condition, or set of conditions, favorable to saving is one which insures to capital the expected advantage of saving. As in the case of labor, the first assurance of an appropriate reward must spring from the existing system of distribution. But there are other sources. A man will have more inclination to save under a strong and beneficent government, where he feels confident his accumulations will not be taken from him by theft, invasion, or extortion. He will save most, too, in a flourishing country, where the industries have become highly capitalistic, so that every smallest addition to his surplus can readily find a use, and that at a rate of interest fairly high.

A third condition inducing men to abstinence is the existence of social machinery suitable to aid in caring for, and investing, their accumulations. A public banking institution with burglar and fire-proof vaults conduces to saving, because one can entrust his accumulations to this, and be relieved of all anxiety as to their safety. Banks, also, offer strong inducements of another kind, in that they find for the capitalist an opportunity to invest. An ordinary producer knows well enough how to practice abstinence, he can save his hundred dollars, or his dollar, or his dime a day; but in a complex industrial society like ours he is usually helpless about turning it to use. He sees no business near at hand requiring his savings, and he cannot set out to seek one that does. Even if he found one, he would have no capacity for judging of its soundness. Furthermore, his savings may be very small, and such sums as he could offer would be so inadequate that no business man would bother to accept them. A bank, on the contrary, is a careful student of business enterprises, and an expert judge of their soundness, so it can take off the saver's hands all the trouble of finding an investment. And, finally, since it can merge his small savings with many other small

ones,* it can quite readily put them to use, and so still further encourage him to save.

A fairly adequate general answer to our question can be put in a single sentence: *The accumulation of capital is favored by the existence of large incomes, by conditions which insure to capital the expected advantages of saving, and by the presence of suitable social machinery to aid in caring for and investing accumulations.*

Illustrative Problems

1. Give reasons for expecting capital to accumulate more rapidly in England than in Scotland, in Germany than in Persia.
2. Suppose the total income of industry in the United States were divided equally among all the citizens, do you think capital would grow as rapidly as it now does? Why?
3. Explain why postal savings banks would be expected to increase the accumulation of capital; same for loan and trust companies; same for insurance companies.
4. From our present standpoint, argue for or against the Oklahoma system of guaranteeing bank deposits.

We have examined the first requisite of efficiency on the part of capital—an abundant supply. A final question remains: how, after capital has been abundantly saved, can it be made available for those who need and are competent to use it?

When a man himself uses the capital which he saves, this question has no pertinence. But, in modern industry, capital is generally saved by one set of men and used by another. Availability therefore turns upon how the two parties can get together, how lending can be made easy on the one side and borrowing on the other. The first part of this question has

* A bank, of course, utilizes not only the funds which people have definitely set apart to play the role of capital, but also a great amount of wealth which is only momentarily idle.

already been answered: lending is made easy by the existence of institutions which specialize in that type of work. But borrowing is made easy in precisely the same way. Where good banking institutions exist the business man desiring capital knows at any moment where a fund lies waiting for investment; and so he can present his demand at this single place, instead of hunting out the individual capitalist—or perhaps many small capitalists. He is also spared the trouble of *proving his soundness* to each small holder—many of whom are anyway unable to judge—and furnishing security to satisfy them. He can prove his soundness once for all before men well qualified to judge, and obtain the whole sum desired without further difficulty.

As under the preceding head, the general conditions for rendering capital available can be put in a single sentence: *The availability of modern capital depends on a high state of entrepreneur credit and high efficiency in the institutions which deal in money capital—banks, trust companies, and so on.*

Illustrative Problems

1. For some years before and after 1892, it looked to European observers as if the United States were likely to give up the gold standard and adopt silver, thus reducing the value of the dollar, as most expected, by about forty per cent. What effect would you expect this condition to have on foreign capital in the United States?

2. The existence of the ordinary commercial bank enables us to make available quantities of money capital out of funds which are not really set aside for use as capital, but rather are being kept for daily use. Try to explain how that can be. (Suppose that 500 persons kept the funds which they expect to put to everyday use in a bank, and made payments partly by cash drawn out, partly by checks drawn in favor of one another. Show that the bank could safely treat a considerable part of the funds as if they were going to be permanently idle.)

3. In Germany there are many agricultural loan associations which issue jointly-guaranteed bonds to the lending public, then lend to their members on ordinary mortgage security. Does it seem likely that this system would tend to make capital more available to farmers?

Section D. Efficiency in Respect to the Entrepreneur Function

As has already been made clear, the central function in all production is that of the entrepreneur, the person, natural or legal, who *undertakes* any particular business,—assumes the responsibility of bringing it into existence, or, anyhow, of continuing it. This of necessity requires that he shall carry the major part of the risk involved and that he shall himself perform certain fundamental managerial duties. What conditions, now, are necessary to enable entrepreneurs to serve efficiently in these functions?

There are three chief requisites of efficient enterprising, (1) an adequate supply of land, labor, and capital, (2) judgment and foresight in recognizing opportunities for business undertakings, and (3) a spirit of enterprise, or initiative,—readiness to assume the responsibilities of production when an opportunity is recognized. The first item calls for little comment. Since the entrepreneur achieves all his results in production by using the other factors, his efficiency will naturally depend on having them to use; but all questions relating to the supply of other factors are well enough treated in the pages immediately foregoing. The second and third requisites are perhaps also self-explanatory; but the conditions which foster them in a community are, owing to the central position and the signal importance of the entrepreneur function, worth a moment's examination.

The qualities of judgment and foresight in recognizing good opportunities are in great measure matters of natural endowment. They exist apparently in some men and some

races, and in other men and races they are absent. On the other hand, they are to some extent capable of being taught; and, to that extent, those countries will have the greatest fund of entrepreneur power which employ the best methods of teaching it. A community successful in business and largely given up to business activities and ideals will unconsciously educate itself. By example, on the one side, and imitation, on the other, it will inevitably disseminate knowledge to all classes of people, and pass down a gradually accumulating store from generation to generation. But, further, business can be, and, as thinkers are beginning to realize, should be, made a subject of formal study. Recent years have brought an enormous development in this line: the conditions underlying and surrounding business successes are analyzed, statistics are compiled and weighed, and the general principles of economics are used in the solution of practical business problems. Facilities have also been created for supplying this scientific information methodically to any one who wishes to obtain it. The output of business books has been a striking phenomenon of the last decade, while colleges have grown up which teach not only the broader economic principles upon which business is based, but also the very details of business method. It is not unreasonable to expect that by these means the ability of men in general to recognize and estimate good opportunities will be markedly increased—in other words, that the entrepreneur function in production will be made more efficient.

The third quality essential in entrepreneurs was described as enterprise, initiative, or readiness to assume the responsibilities of production. If a country fails to develop men of the peculiarly adventurous type who are willing to assume the responsibilities of production, the entrepreneur function in that country will be very poorly performed. In consequence, since the co-operation of all other factors depends on the entrepreneur, the country may have abundant natural resources, labor power, and capital, but until men appear—perhaps com-

ing in from other countries—who dare to attempt great combinations of these factors, industry will remain at a standstill.

The enterprising spirit, like good judgment, may in part be attributed to natural endowment—Western races are, or, until the recent rise of the Japanese, were assumed to be, more enterprising than Eastern. But probably in greater part this quality depends upon external fostering conditions. Thus, something less than a century back, the unlimited-liability partnership form of co-operative undertaking was much the most common. Under this form, a man starting a new enterprise which might, for all he knew, result in failure, stood to lose all he owned. At the present time, the form of organization more commonly used is one possessing the characteristic of limited-liability: the members are responsible for the debts of the organization, not to the full amount of their property, but only to a strictly defined sum—the sum they have put into the business, or perhaps that and as much more. Naturally, under the latter conditions, rather than under the former, men will venture upon new and dangerous enterprises.

Again, where the risk of undertaking enterprises is great, men must have some assurance that in case of success their gains will be correspondingly great. The patent laws must be effective, so that when a man launches on the market an untried article he will not be robbed of his unusual gains by others who manufacture the same article as soon as the dangers have been overcome. A man must know also that his property will not be destroyed or stolen by people whom the government cannot control, and that his profits will not be taken from him through merciless taxation imposed by the government itself. Finally, the spirit of enterprise is certain to assert itself more freely where some kind of machinery, legal, and industrial, exists to help it. Thus, in earlier times, corporations came into existence only by a special act of the Legislature; in our day they are formed much more readily by administrative process under the authority of a general law.

Every large city has also nowadays a stock exchange where the shares of corporations are daily bought and sold, thus reducing the task of acquiring control of an enterprise to a simple market transaction.

The conclusions of all this part of our discussion may now be summarized as follows: *High productive efficiency in respect to the entrepreneur function, in so far as it is not a matter of natural endowment merely, depends chiefly on the maintenance of conditions which* (1) *minimize the individual risk-burden of undertaking,* (2) *make possible the quick and easy entry into, and withdrawal from, enterprises, and* (3) *provide or permit large profits where risk is unavoidably great.*

Illustrative Problems

1. Give two or three ways in which patent right laws contribute to productive efficiency.

2. There is much to be said in condemnation of our recklessness in permitting private individuals to exhaust our vast stores of natural wealth in gold, silver, oil, copper, etc.

What can be said on the other side?

3. Was there any excuse for the great liberality displayed in the granting of trolley car franchises in the late eighties?

4. Argue for the contention that a much more efficient protection of the public against dishonest promoters of mining and other enterprises would contribute greatly to productive efficiency.

CHAPTER VII

INCREASE IN OUTPUT AND RATE OF PRODUCTION

Looking at the situation broadly, Man finds himself set over against a natural world, from which through his own efforts and sacrifices he can and must make himself a living,—can and must produce the goods necessary to life and happiness. This natural world over against which he is set, and from which he must wrest a living, is practically a fixity: even from the standpoint of many generations, it experiences no increase in volume or capacity; indeed as respects important raw materials, it even shows a diminution. On the other hand, population in most countries, certainly in the world as a whole, constantly increases. It follows that, from a natural plant which is practically unchanging, an ever-increasing output of economic goods must be produced. In this situation, it becomes of much importance that we should study the results which follow our efforts to increase output, and ascertain, as far as we may, to what extent and in what degree these efforts are likely to be successful.

Certain aspects of this problem have already been touched upon, at least by implication, in discussing productive efficiency. In view of the fact that different policies in the conduct of production result differently in respect to the volume and goodness of product, it, of course, follows that we can increase total output for any given period over that of some earlier period, provided that in the earlier period we have pursued a less efficient policy and are now in a position to resort to the more efficient one. Further, as discovery and invention supply us with new methods and policies which are more efficient than the old ones, we can increase total product by resorting

to these new methods and policies. But these considerations, though of great importance, are too evident to need any prolonged discussion. There is a much more difficult body of doctrines having their root in the fact that *changes in the proportions in which the factors of production are combined are quite sure to cause changes in the quantity of product obtained per unit of any one of the factors.* Setting two men to work a piece of land hitherto worked by only one would probably mean a larger total product; three workers might make the product still larger; and so on; though the time would doubtless come when additions to the amount of labor expended ceased to increase product, perhaps even reduced it. Moreover, even while output was being increased, the changes would probably not be uniform. The increases might be more than proportional to the increases in the labor, or just proportional, or less than proportional. Here, evidently, we have a very fundamental problem. Further, it is a problem which, though seeming elementary enough in this simple statement, contains, as we shall find, a veritable nest of complications.

1. General Solution of Problem for Individual Productive Instruments

As already indicated, our problem is of most significance when we are thinking of a whole people over against its total outfit of natural resources; but, manifestly, we could not expect to obtain light on this larger question unless we had made some study of *the behavior of individual units* of our productive factors. In order to learn how the total outfit of a nation will react when we try to increase its total production by spending more effort upon it, we must first ascertain how a *particular* piece of land or a *particular* machine or a particular power plant behave under similar treatment. Accordingly, this chapter is devoted to answering the question: What results in respect to output when we try to increase the output

from any instrument of industry by increasing the quantity of the auxiliary factor or factors combined with it?

In making a general answer to this question, let us suppose ourselves to experiment with a common hot-air furnace of the size adapted for heating a 12-room house, and to ask what results we should get from using for each experiment a larger charge of coal than for the preceding one, the total quantity to be applied in a period of two hours. If, for example, we were to make our first experiment using 10 pounds of coal, in the next one 20, in the next 30, and so on, we may be pretty sure that the results would be something like the following. The first experiment would probably deliver no appreciable amount of hot air,—the heat produced being all absorbed by the furnace itself and the conducting pipes. The second experiment with 20 pounds of coal might supply enough heat to raise a room of 200 cubic feet to 70 degrees. The 30-pound experiment might raise to the same temperature twice as much space, though the amount of coal used was only one-half greater. The 40-pound experiment might heat 1,000 cubic feet, two and one-half times as much as the 30-pound test, though the increase in coal was only one-third. This *more than proportional* increase in the work done might continue for several more experiments. But presently a test would come which, though *showing some increase* in the total work accomplished, *showed an increase less than proportional* to the increase in the charge of coal. Thus the 80-pound test might give us heat for 8,000 feet, while the 90-pound gave us only enough for 8,800 feet:—the *coal used increasing one-eighth, but the work done increasing only one-tenth.* Finally, after this less than proportional increase in work had gone on for some time, a point would be reached when a larger amount of coal would smother the fire and *actually diminish* the amount of heat delivered. To summarize, as soon as our combinations began to give results at all they would fall into three groups: (1) Output increasing *more* than proportionally to the

increase in the auxiliary factor (coal); (2) Output increasing *less* than proportionally; and (3) Output diminishing. For convenience in reference, let us call this the Principle of the Three Stages.

In the above paragraph, the heating furnace supplied an illustration easily understood and one in which the truth of the conclusion laid down is so evident as to make proof unnecessary. But it will scarcely be doubted that the same principle applies quite generally in economic production. If, for example, we were to take a ten-acre field devoted to raising potatoes, and, in successive seasons, use in cultivating that field first 1 day's labor, then 5 days', then 10, then 15, and so on, we should doubtless get results analogous to those found in coaling the furnace. For several experiments the crop would increase more than proportionally to the increase in the labor, then less than proportionally, and finally would diminish.

As to the existence of the first and third stages indicated, there surely is no room for doubt: the amount of labor used might be so small that increasing it would more than proportionally increase the crop, and the amount of labor might already be so great that increasing it would actually cut down the crop. As respects the second stage, some doubts have been expressed, but they seem to have little ground. The universal practice of farmers in a matter so fundamental as this must surely be based on a trustworthy induction; and that practice fully confirms our contention that the second stage exists. First, farmers do not try to raise all the produce wanted on a single piece of ground. Instead, they use many pieces. But this they would not do, if the amount raised from one piece could be increased indefinitely at the same rate as the labor applied to it. Secondly, after having extended cultivation to inferior lands, they return to spend more labor on the superior ones, when the price rises high enough to warrant spending the additional labor for a smaller proportional return. And this they would not do, unless the policy added

something to the crop. There is a stage, then, in which output is increasable but not increasable in proportion to the increase in the auxiliary factor.

2. Illustration from an Imaginary Experiment

The above account of the general principle underlying the behavior of individual industrial factors when we try to increase output by increasing the quantity of assisting factors, is so obviously true for such cases as those considered, so much a matter of everyday experience, that we would almost seem justified in omitting its further discussion. In fact, however, the topic is extraordinarily prolific in misunderstandings; so much so that it seems necessary to spend considerable effort in trying to insure a clear, accurate comprehension of the doctrine itself and the various corollaries and consequences *derivable from it.* To this end, we shall ask the student to follow the assumed results of an imaginary series of experiments, embodying the working of things in very *definite and detailed arithmetic form.*

In this series of imaginary experiments we use each time 20 units of one of the factors which we will call N and combine with these, increasing quantities of another kind of factor which we will call L, using first 2 units of these Ls, then 3 units, the next time 4 units, and so on. In our table, the first column shows the number of the combination of which there are 27 in all; the second gives the number of Ns used in the combination indicated, in every case 20, by hypothesis; the third column shows the number of Ls used, 2 in the first combination, 3 in the second, 4 in the third, and so on; and the fourth column gives the total number of units of output for the particular combination, for example, the fifth combination, using 20 Ns with 6 Ls, gives 84 units of product, the ninth combination, using 20 Ns with 10 Ls gives 200 units of product.

The fifth column has two sets of figures, one in parenthesis, the other not. The former shows what the increase in output *would have been,* if it had been *just proportional* to the increase in the number of Ls, while the second set—those without parentheses—show what the increase actually was. The first, the figures in parenthesis, are derived, for any particular

No. of Comb.	Amount Ns	Amount Ls	Output	Proport. Increase	Actual Increase	Average in Ns	Average in Ls	Marginal Product of Ls
I	II	III	IV	V		VI	VII	VIII
1	20	2	2	..	..	.1	1	..
2	20	3	6	(1)	4	.3	2	4
3	20	4	16	(2)	10	.8	4	10
4	20	5	35	(4)	19	1.7	7	19
5	20	6	84	(7)	49	4.2	14	49
6	20	7	126	(14)	42	6.3	18	42
7	20	8	156	(18)	30	7.8	19.5	30
8	20	9	179	(19.5)	23	8.9	19.8	23
9	20	10	200	(19.8)	21	10	20	21
10	20	12	236	(40)	36	11.8	19.7	18
11	20	14	266	(39)	30	13.3	19	15
12	20	16	290	(38)	24	14.5	18.1	12
13	20	18	312	(36)	22	15.6	17.3	11
14	20	20	330	(34)	18	16.5	16.5	9
15	20	22.2	346	(36)	16	17.3	15.6	7.2
16	20	25	362	(43)	16	18.1	14.5	5.7
17	20	28.5	380	(50)	18	19	13.3	5
18	20	33.3	393	(63)	13	19.6	11.8	2.6
19	20	40	400	(78)	7	20	10	1.1
20	20	44.4	398	(44)	All Decreases	19.9	8.9	All Decreases
21	20	50	393	(50)		19.6	7.8	
22	20	57.1	360	(56)		18	6.3	
23	20	66.6	280	(60)		14	4.2	
24	20	80	140	(56)		7	1.7	
25	20	100	80	(35)		4	.8	
26	20	133.3	40	(26)		2	.3	
27	20	200	20	(20)		1	.1	

combination, by noting the increase in the number of Ls for that combination, ascertaining what per cent of the number of Ls in the preceding combination this increase is, then computing what an equal per cent. of the total output of the next preceding combination would be. Thus, in the thirteenth combination, the Ls show an increase over the twelfth combination of 2 units, which is an increase of 2/16 or 12.5 per cent. But the total output of the twelfth combination was 290, and 12.5 per cent. of this is 36. The latter figure, accordingly, appears in the parenthesis under the thirteenth combination, showing that the increase in output would have been 36 units, if it had been proportional to the increase in the number of Ls used.

The figures in this fifth column which are not in parenthesis represent the *actual* increase in output, and are, of course, obtained for any particular combination by subtracting from the total of that combination the total of the combination next preceding. Thus from the 312 output of the thirteenth combination, we subtract the 290 of the twelfth and get 22, the actual increase for the former combination, and this figure, therefore, appears in the fifth column outside the parenthesis. (The remaining columns of the table will be explained later.)

A brief inspection of our table will show that it represents symbolically the phenomena which were set forth above as present in real life. No actual combinations of factors behave in precisely the way indicated in this table; but the general course of things is strictly regarded. We have but to follow the figures given in the fifth column to see that, for the first nine combinations, output increases *more* than proportionally; that, for the next ten combinations, it increases *less* than proportionally; and that, for the last eight combinations, it *absolutely diminishes*. In short, it passes through the three stages through which real combinations pass. Accordingly, we

can safely use the figures of this table to bring out in definite and precise form the points directly or indirectly involved in our principle.

ILLUSTRATIVE PROBLEMS

1. If you had at your disposal 10 Ns and 8 Ls, what combination would you naturally use? What one, if you had 40 Ns and 32 Ls? If you had 5 Ns and 4 Ls? 60 Ns and 75 Ls? How much, if you added another 6 Ls?

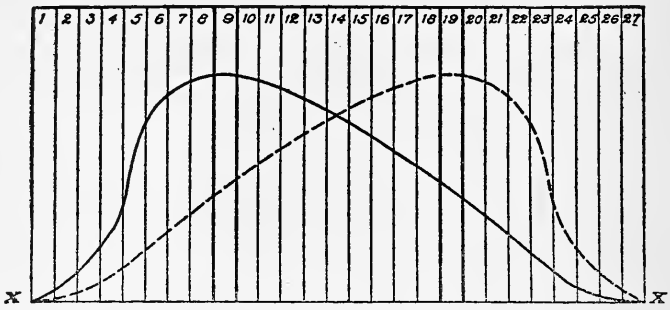
2. If you had at your disposal 60 Ns and 48 Ls, how much product would you naturally be getting? How much more would you naturally get, if you were to put in 6 more Ls? How much, if you added another 6 Ls?

3. Changes Caused in Averages as Measured in Each of the Two Factors

The next point to be remarked concerns the changes caused in the *average* output as measured in one or the other of the factors. This is, indeed, only another way of looking at the facts already presented, but it is a way of much interest and importance. How, then, does *the average measured in Ls* behave? The seventh column of our table shows that it increases up to the ninth combination, then diminishes to the end. Moreover, the table shows a perfectly definite reason why this must be so. The average output for any combination, measured in Ls, is, of course, equal to the total output for that combination divided by the number of Ls used in the combination. But, if for any series of combinations the total output is increasing *more* rapidly than the number of Ls, (as it is for the first nine combinations), the quotient obtained, that is, the average, must be *increasing*. On the other hand, if for any series of combinations the total output is increasing *less* rapidly (as it is for the ten combinations after the ninth), than the number of Ls, the quotient, and so the average, must be *diminishing*. Finally, if output is diminishing absolutely while the number of Ls is still increasing, the average must of

course be diminishing. The average, measured in Ls, therefore, first *increases up to the ninth combination, then diminishes to the end.*

Diagram II.



The behavior of the average measured in Ns, as represented in the sixth column, is necessarily somewhat different. Since the total output is increasing up to, and including, the nineteenth combination, while all the time the number of Ns used remains constant,—that is, since the dividend increases while the divisor remains constant—the average, measured in Ns, must increase throughout this series. On the other hand, since the total diminishes after the nineteenth combination while the number of Ns remains constant, the average, measured in Ns, must diminish after the nineteenth to the end.

Summarizing the points made above and the most immediate inferences therefrom, we have the following. First, each average rises during a series of combinations; reaches a maximum in one particular combination; then diminishes for the remainder. Secondly, the maximum average combination is different for the two averages, being an early one for the L-average, a late one for the N-average,—a proposition which plainly follows from the conditions. In the third place, the average measured in *either* factor is bound to be an increasing

one for every combination prior to the tenth; that average measured in either factor will be a diminishing one for every combination after the nineteenth; and, for the intervening combinations, the average will be a diminishing one, measured in Ls, but an increasing one, measured in Ns. These points are brought out graphically in the accompanying diagram, in which the continuous curve represents the averages measured in Ls, while the dotted curve represents the averages measured in Ns.

4. Changes in Additions or Marginal Products

Another effect of attempting to increase output by increasing one of the factors, concerns the *changes caused in the addition to output as measured in the addition to the changing factor.* Thus the thirteenth combination shows an increase over the preceding one of 22 *units of output,* while the *number of Ls added* to make this combination was 2; and, dividing 22 by 2, we have 11, which is the number of units of product added for each of the Ls added. With some show of reason, this quantity is frequently designated *the marginal product of the Ls*—that is, of the increasing factor. Anyhow, the course which it takes as we increase the quantity of Ls used is of considerable importance. That course is indicated in the last column of our table. It begins at 4 in the second combination; increases to 49 in the fifth; from thence grows smaller and smaller to the nineteenth; after which it remains less than zero.

These results are inevitable so long as the relation between the increase in output and the increase in the number of Ls is the exact relation assumed in our table. The addition to output for each added L is just what it is because the relation between the increase in the total output and the increase in the total number of Ls is just what it is. We must not infer, however, that the *precise* course taken by the marginal additions in our table is the only one which they could take under

the *general* conditions assumed, namely, the conditions that output increased more than proportionally up to the ninth combination inclusive, then less than proportionally to the nineteenth, and then diminished. The precise course taken by the marginal addition or product as a result of a change in the proportion between output and the number of Ls, depends, not only on the *direction* of that change, but also on *its degree*. Thus, if the proportional increase in output had been less rapid during the earlier combinations or had fallen off less sharply in the later ones, the change from an increasing to a diminishing marginal product would have come later. Other possible variations in the behavior of the marginal product from that indicated in our table could easily be worked out arithmetically. Nevertheless, if we assume that the course taken by the output in our imaginary experiment was fairly *typical*,—and I think we may properly do so,—the course taken by the marginal product would correspond in a general way to that which it takes in our table: that is, *marginal product would increase up to a maximum coming somewhat earlier than the combination at which the increase in output became less than proportional, then diminish to the end.*

Before leaving this topic, we must emphasize one aspect of the matter just commented upon,—the fact that the point where marginal product begins to diminish does not correspond with the point where the increase in output changes from a more than proportional to a less than proportional one,—the latter being at the tenth combination, the former at the sixth. As already noted, this precise location of the point at which the marginal product begins to decline is not necessary for every possible case in which the increase begins to be less than proportional at the tenth combination. In other words, our experiment does not prove that a locating of the change in marginal product at a point earlier than that at which the change in proportionality takes place is inevitable; it does prove, however, that this is possible, if not probable.

It follows that we can not properly treat the two phenomena as identical. The principle that the marginal product first increases, then diminishes is not the same as the principle that output increases more than proportionally to the changing factor, then less than proportionally.*

5. Factor L Constant, Factor N Changing

In our imaginary experiment as embodied in the table, the quantity of Ns was supposed to be constant while that of Ls increased. What, now, would be the result were this situation to be reversed with the Ls constant and the Ns increasing? It would be precisely similar to that already brought out with the places of Ns and Ls reversed. Output would increase at first more rapidly than the Ns, then less rapidly, then actually decrease; the average, measured in Ns would increase up to some early combination, then diminish to the end, while the average, measured in Ls would increase up to some later combination, then diminish to the end; and, finally, the marginal additions, the marginal product of Ns, would increase up to some combination prior to the ninth, then diminish to the end. And note that the acceptance of these statements does not depend on a new induction. *If* the points made with respect to the results which follow when Ns are kept constant and Ls increased, are true, the analogous statements with respect to the results which follow when Ls are kept constant and Ns increased *must* be true. A table reversing the relations of Ls and Ns, in respect to both conditions and results is directly *deducible from the table already given.* Accordingly, in so far as the doctrines set forth in the preceding discussion apply to any particular combination, they are true without regard to which of the factors is kept constant and which is increased. If they are true of a combination of land and labor in which

* This comment is necessary on account of occasional carelessness of statement on this point in the literature of our subject.

the land is constant, they are equally true of one in which the labor is constant.

The point just made that the principles laid down with respect to the effect of increasing one of the factors of a combination while the other remains constant are true whichever one of the factors is increased, must not be understood as implying that it is of no practical importance which factor is taken as the constant one. Some natural factors in production and many produced ones necessarily appear in large, indivisible units. They must be utilized as a whole or not at all. For example, the group of great lakes beginning with Superior and ending with Ontario,—a very important factor in transportation—can not be made smaller or larger. We must use the system as it is. So a plant for lighting a great city or supplying it with water can not be changed every week or month or year. If we have to increase or diminish the amount of service obtained from factors of this type, we must for a time if possible do so by increasing the quantity of auxiliary factors used. Such increasing of the auxiliary factors is usually possible, because those factors are to be had in small or easily divisible units. While we can not increase the size of the lakes, we can change in no great length of time the number of boats navigating those lakes. While we can not at frequent intervals enlarge the whole lighting plant, we can readily increase the amount of labor employed or the quantity of coal consumed. The importance of the principles brought out in this chapter grows out of their application to cases like these in which one of the combining factors is naturally or necessarily kept constant for a shorter or longer period, while the others may be changed.

6. Output from Groups of Factors

We have noted the effect on output of increasing one of the factors of a combination when we are dealing with *single* factors. We have to add that the same phenomena appear

when we are dealing with *groups* of factors over against one or more auxiliary factors. Thus, when trying to ascertain the effect on output from the aggregation of land, buildings, machinery, etc., which we call a *plant,* of increasing the amount of auxiliary factors, raw materials, fuel, labor, etc., we have the same general experience as before. For a time, the output increases more rapidly than the auxiliary factors, then less rapidly, then absolutely diminishes.

The same statement would of course apply to a *business unit* as a whole, that is, a partnership or a corporation operating one or many plants. This would be so, partly because the plants operated by the corporation would exhibit the phenomena in question and partly because the *organization side* of the business would independently exhibit these phenomena. While parts of the organization remained constant—for example, the higher officials, *one* president, *one* secretary, and *one* general manager,—other elements would be increased, and this increase would at some stages result in a more than proportional increase in output and at others in a less than proportional one.

In general, then, it is scarcely to be doubted that we have here a principle or set of principles of very wide application. Barring chemical combinations, which permit of no variation, we may in almost all cases alter the proportions in which factors are combined without destroying their power to produce; but we *will* change their effectiveness or productivity, making them produce, proportionally, more or less. And this fact will be of importance whenever the circumstances are such that some one factor or group of factors is absolutely fixed, or, for a longer or shorter period, is fixed by special circumstances.

CHAPTER VIII

INCREASE IN OUTPUT AND SOME ECONOMIC CONSEQUENCES

In the last chapter, we explained the more immediate and chiefly technical consequences resulting from attempts to increase the output from a factor of production by increasing the amount of the auxiliary factors employed. We must now remark on some remoter consequences,—especially some of an economic character.

1. Limits of the Productive Capacity of Individual Instruments

As noted in introducing our last chapter, one of the most important economic problems connected with the matter we are now studying concerns the *limits* of our productive capacity. In so far as this inquiry has to do with the individual instrument, the most valuable conclusions of our study are these two: (1) there is an absolute limit to the amount obtainable from any instrument, and (2), before that absolute limit is reached, there is a stage during which the increase in output is less than proportional to the increase in the quantity of auxiliary factors. On account of its great importance, the second of these ought, perhaps, to be given the emphasis derivable from its statement as a formal principle. This principle is commonly known as The Law of Diminishing Returns.

Principle of Diminishing Returns. *If attempts are made to increase indefinitely the output of any factor of production by increasing the quantity of auxiliary factors used, a time will come, before the absolute limit is reached, when the increase in output is less than proportional to the increase in the quantity of assisting factors used.*

One word now with respect to certain technical phrases used in connection with the principle just stated. When the utilization of any instrument of production has been carried up to the combination which will yield only a smaller proportional return, it is said to have been worked or utilized to *"the point of diminishing returns."* A step further takes it *beyond* the point of diminishing returns or *into the stage* of diminishing returns. As the utilization of any instrument is carried further and further into the stage of diminishing returns, it is said to be worked (cultivated in the case of land) *"intensively"* or *"more intensively"*. Another method of expressing the same idea is to say that *"the margin of cultivation* (utilization) *is lowered"* or *"pushed down"*.

The discussion leading up to the above statement of the principle of diminishing returns has, perhaps, insured its correct interpretation. In view, however, of numerous misunderstandings which have appeared in economic controversy, it seems best to indicate specifically certain misinterpretations which need to be guarded against. First, the "returns" referred to in the designation "diminishing returns" are *physical* returns,—product, not money or profits. The principle means that, by increasing the amount of labor we can increase, though less than proportionally, the *potatoes* raised on a given piece of ground, or the *heat* given out by a furnace, or the *freight* carried by a railway, and so on.

In order to emphasize this point, I like to call our principle The Law of Diminishing *Output,* thus avoiding the ambiguity attaching to the word "returns".

Another misunderstanding confuses the principle now under discussion with one which says that there comes a stage in the production of goods when product can be increased only at *increasing cost.* This statement is without doubt true; but the condition indicated is not identical with the one meant when we say that we have reached the stage of diminishing returns. In using the latter characterization we are measuring the in-

crease in output *only in terms of the changing factor.* In consequence, we can treat diminishing output and increasing cost as reverse aspects of the same thing, *only on condition that cost is entirely covered by what we spend for the changing factor.* But of course this is not true. Our Ns must have a price as well as our Ls, otherwise they would not constitute an economic factor at all, and, so, would not come under our consideration. But, when cost is taken to include the outlay for Ns as well as Ls, the turning point from diminishing cost to increasing cost would rarely if ever coincide with the turning point between increasing returns and diminishing cost. Thus, in the case represented in our table, the point where increasing returns were replaced by diminishing returns would always be at Combination 10; whereas the point where diminishing cost was replaced by increasing cost would change with every considerable change in the relative prices of Ns and Ls. Thus, if Ns were worth $1 and Ls $10, this point would be Combination 11; if Ns were worth $1 and Ls $3, the point would be Combination 12; with Ns at $1 and Ls at $1.50, the point would be Combination 13.

Another troublesome misunderstanding interprets our principle to mean that output could never be increased at a proportional rate whatever might happen, *however much improvement in the productive arts might take place.* This, of course, is a quite illegitimate interpretation. A natural law in Economics, just as in Chemistry or Physics or Biology, *assumes the continuity of conditions other than the one or more which the principle itself represents as changing.* Doubtless any person is at liberty to affirm a principle analogous to the one here considered in a *dynamic* sense, as we sometimes say, that is, as *certain to prove true despite changing conditions.* But most prudent people will hesitate to do so; and anyhow, unless this is expressly indicated, the affirmation is always made subject to the condition that no changes are to take place except the one specified in the principle itself, namely, an increase in the quantity of the changing factor.

2. Elasticity of the Limit Set by the Law of Diminishing Returns

In our formulation of the Law of Diminishing Returns, and too often in our interpretation of that law, all emphasis is laid on the fact that it acts as a *check on output,—sets a limit* to output. Only a very little thought makes it clear that this principle has another side. It is true that output does not increase proportionally to the increase in auxiliary factors; but then *output does increase.* If we have reached the stage of diminishing returns in the utilization of any instrument of production, we can not get any more product out of it at the same rate as before; but we *can get some more.* In fact, our principle might with very good reason be named the Principle of Output Increasable at a Diminishing Rate. Such a designation recognizes equally the fact that output can be increased and the fact that the increase will be less than proportional.

3. All Divisible Factors Usually Being Worked in the Stage of Diminishing Returns

We have seen that most economic factors are subject to the law of diminishing returns in the sense that, in trying to utilize them more and more fully, a time will come when such attempts will increase product, but increase it less than proportionally. We now have to add that, *under normal conditions, the utilization of any divisible factor must have been carried into this stage,—producers must be working it in some combination beyond the point of diminishing returns.* In terms of our table, any such instrument will at all times be working in some combination later than the ninth and earlier than the nineteenth.

The general argument on which the above statement is based is this: all combinations earlier or later than those indicated are excluded as being for one reason or another illegitimate. First, all combinations coming after the nineteenth must be excluded, since the additions to the changing factor which

make up these combinations reduce the total,—a result which can be avoided by the simple expedient of not making those additions. Secondly, all combinations from the first to the eighth inclusive must be excluded; since, under our hypothesis that the factor under consideration is divisible, we could transform any one of these early combinations into the ninth by the simple expedient of discarding some of the Ns, and, in doing this, would increase our total. Thus, the seventh combination, 20 Ns with 8 Ls, could be transformed into the ninth by discarding 4 of the Ns, making the combination 16 Ns with 8 Ls,—the same 2 to 1 ratio as that of the ninth. But this combination would give us 8 times 20 or 160 units of product, whereas the original combination of 20 Ns with 8 Ls would give us only 156 units.

We have seen that, under normal conditions, no divisible factor would be used in any combination later than the nineteenth nor earlier than the ninth. That is, the actual, effective working of any factor would be limited to some one of the eleven combinations from the ninth to the nineteenth inclusive. But we must narrow still further the range of reasonable, and so actual, combinations. *Another* element necessarily comes in to determine what ones are possible, namely, *cost of production.* If Ns could be had in unlimited abundance for nothing, while Ls had a price however small, the ninth combination would plainly be the most desirable, since it gives the highest average measured in Ls, and so, when the price of the Ls constituted the only cost, the cost in this combination would be lowest.* On the other hand, if Ns had a price, but Ls none, the nineteenth combination would be the cheapest, and, so, the most desirable of all. But, in real life, both Ns and Ls will have some cost, else they would not be economic factors at all. Further, there will not often be such a difference between their costs that either is negligible in the

* This would be true even if Ns had a price but one which was insignificant as compared with that of Ls.

total cost. It follows that, if both factors are divisible, the truly legitimate combination will normally be one which comes later than the ninth and earlier than the nineteenth. Assuming reasonable conduct on the part of producers, they will be using any factor in some one of the combinations indicated,—the combinations lying between the ninth and the nineteenth. But any one of these is bound to be a diminishing-returns combination, that is, one holding such a position that, if we try to increase output by increasing the quantity of auxiliary factors, we shall effect some increase but an increase which is less than proportional to the increase in auxiliary factors. We conclude, then, that, *in actual life, we should expect to find any divisible factor being worked in the condition of diminishing returns.*

4. Indivisible Factors May Be Working in the Stage of Increasing Returns

We have just seen that divisible factors will normally be used in the condition of diminishing returns, because on account of the divisibility of the factor which was kept constant in our experiments, we could always change to a later combination, and would do so if this was desirable. But, when we come to deal with indivisible or large-unit factors, the problem is greatly altered. Just because the given factor is indivisible, we can not adapt it promptly to every change in the need for product. Thus, it is plain that we can not change our furnace every time the weather changes, substituting a larger one if more heat is needed or a smaller one if less heat is needed. What we have to do is to run the one we have *harder or easier,*—put in coal oftener or less often. An obvious result of this situation is that, if the weather gets warmer, we may be obliged to run the furnace so low that it is being worked in some stage prior to the ninth, say the seventh or the fourth. This of course is uneconomical: we get much less heat per pound of coal than we might, if our

plant were adapted to just the need of the moment. But we have no choice. We must install a furnace large enough to meet the need of really cold weather; and yet, on a moderate day, we must not work it hard enough to make the house uninhabitable. It follows, then, that *we may find any indivisible factor being used in the stage of increasing returns,* output increasable at an increasing rate.

What we have just said of the furnace applies as well to any large natural factor, for example, the lake system used for illustration on page 114. Such a factor may be working in the condition of increasing returns or in that of diminishing returns. Which it will be depends entirely on the existing need for the services of the factor. We have no choice in the matter. We have to use it as it is whether the need be great or small. For a long period while population was small, this vast system of waterways could be utilized only in some inferior combination, some one earlier than our ninth. With the increase of population during the last fifty years, it probably has passed into some combination later than the ninth.

The case of *indivisible, large-unit* factors of the producible sort is, naturally enough, different. *We have some control* of the situation in that, when *constructing* such instruments, we *can adapt them* to a particular output,—make them of the proper size to supply this output most cheaply. But, as a matter of course, they will be called on to supply different volumes of output at different times. Naturally, the volume for which they will be planned will be that one which is expected to be normal. They will, therefore, be built on a scale which enables them to supply this normal output when working in the combination showing least cost.* It follows that, *under normal conditions,* such indivisible producible factors will be working in that particular combination lying between the ninth and the nineteenth which shows *least cost.* If, however, the demand

* They will probably be built on a *little larger* scale than this in anticipation of increasing need.

is abnormally large, they will be pushed into some later combination; while, on the other hand, if it is abnormally small, they will be brought back into some combination lying between the least-cost one and the ninth, or, even, into one earlier than the ninth.

5. The Diminishing Marginal Significance of Factors

One more important fact which in part anyhow grows out of our effort to increase output by increasing the quantity of the auxiliary factor used, is suggested by the title of this section: "The Diminishing Marginal Significance of Factors." In general the different units of any particular kind of factor can be put to uses *having different degress of importance or significance*. When such uses are wholly distinct, this proposition is evident enough. Thus, in time of war, the food supplied to the soldiers in the field plays a more important role than that destined for the ordinary civilian; and the steel used in making ammunition is more significant than that devoted to making pleasure cars. Even if the different uses have to do with one product, the case is scarcely less plain. Thus, the steel used in the corn farmer's plow is more important than that used in his spring-toothed harrow; without the former he could scarcely farm at all, the latter he might dispense with rather easily. Finally, different uses of the same factor differ in importance or significance even when the factor is operating in just the same way. Thus, if, under similar conditions, a cultivator goes over a cornfield several times, the importance of the service it renders will be smaller as the number of times increases. This, manifestly, is merely a special application of the principle of *diminishing marginal productivity* brought out in the preceding chapter.

But, not only may the different uses to which a given factor is put vary greatly in importance or significance, among these different significances there is one which plays a much more important role than the rest. That one is *the smallest*

or *least* of them all. Thus, if we have steel enough so that we can afford to use it for both the plow and the spring-toothed harrow, the significance of the steel used in the harrow will play a more important part than will the significance of the steel used in the plow. The former rather than the latter will determine the estimate we put on the importance of the amount of steel necessary to make a plow or a harrow.* The reason is not far to seek. Our estimate of the importance of anything—in this case the quantity of steel necessary to make either a plow or a harrow—depends on *how much loss we* should experience if we had to give it up. But, if we had to give up either the plow or the harrow, the one chosen for the sacrifice would, of course, be the harrow, the less important of the two. The significance lost to us, therefore, would be the lesser significance; and, hence, the estimate which we make of the importance of steel would be determined by the lesser significance. Broadening the statement so as to cover the whole stock of steel, we say that the estimate we make of the importance of steel would be determined by its significance in the least important use,—its least significance.

This least significance of any factor which is of such importance in economics, we designate its *marginal significance*. The designation signifies that this particular significance is located at the boundary line separating the significances which are *realized* from those which are not.

We have seen that the different significances of any factor are quite unequal, and that one of these, the marginal significance, is of great moment in economic matters. We must now add a proposition which we will call The Principle of Diminishing Marginal Significance.

Generally speaking, the marginal significance of any factor tends to diminish as the quantity of that factor available increases.

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* As we shall learn later, this estimate will have a part in determining the value or price of steel.

The marginal significance of a kind of land of which there are millions of acres available will be much smaller than it would be if there were only hundreds. As between different kinds of land, the marginal significance of the kind of which there are only hundreds of acres will very likely be greater than the marginal significance of a kind of which there are millions of acres, even though the generic significance of the latter kind is much greater.

That things are bound to work in a way to make the above proposition true is easily seen. Assuming the general rationality of business conduct, the uses to which any factor have not as yet been put will be less significant than those to which it has been put. It follows that, if new supplies of that factor are forthcoming, they can be utilized only by assigning them to uses which have less significance than those already provided for. Hence the principle.

CHAPTER IX

INCREASE IN OUTPUT AND COST OF PRODUCTION

A very important topic closely connected with the one which has occupied the last two chapters is the effect on cost of production caused by attempts to increase the volume of output. This problem really breaks into two problems: (1) what will be the effect on cost of trying to increase output from *a particular instrument* or group of instruments fixed in amount, and (2) what will be the effect on cost of trying to increase the output from *a particular industry as a whole,* with no restriction on the quantity of any instrument or factor. We begin with the former of these problems.

1. The Effect on Cost of Trying to Increase Output from a Particular Instrument or Set of Instruments Fixed in Amount

Interpreted as asking: what will be the effect on cost of trying to increase output from a single instrument or set of instruments fixed in amount, our new problem is very close to that treated in Chapter VII. In fact, if we mean by cost only the expenditure for the factor which increases, the two problems are one, looked at from slightly different points of view. Under the conditions named, to say that a plant or a business is in the condition of diminishing returns would amount to the same thing as to say that it is in the condition of increasing cost. But, in the real world, all economic factors have prices, Ns as well as Ls. The total cost, therefore, will not change merely with the change in output as measured in Ls; it is bound to be influenced by the changes in output as measured in Ns also. But, though different, the two prob-

lems are very closely connected; and the solution of the one treated in Chapter VII plays a large part in the solution of the new one.

Our first task is to consider the effect on cost of trying to increase output from *simple combinations* like those made up of our Ns and Ls. The solution is not difficult, though the explanation must be followed with some care. First, the cost per unit of product for any particular combination must equal the cost per unit measured in Ns plus the cost per unit measured in Ls. For example, if in a given combination the average output measured in Ns is 10 units and each N costs $1, so that the cost of each unit measured in Ns is $1 over 10 or 10 cents, and, if that same output measured in Ls gives 20 units per each L while each L costs $1, so that the cost of each unit of product measured in Ls is $1 over 20 or 5 cents, then, the total cost of each unit of product must be 10 cents plus 5 cents, or 15 cents.

Secondly, the cost per unit measured in either Ns or Ls must increase as the average output measured in that factor diminishes, and must diminish as the average measured in that factor increases. For example, if the average output in Ns increases from 10 to 20 units, when each N costs $1, then the cost per unit, measured in Ns, falls from 10 cents to 5 cents. On the other hand, if the average measured in Ns diminishes from 20 to 10, the cost of each N being $1, the average cost measured in Ns, rises from 5 cents to 10 cents.

Again, since the average measured in Ns is increasing from the second combination to the nineteenth, while that average diminishes from the twentieth on, the cost, measured in Ns, must decline from the second to the nineteenth combination and must increase from the twentieth on. On the other hand, since the average, measured in Ls, increases up to the ninth combination and then diminishes to the end, the cost, measured in Ls, must also diminish up to the ninth combination and thereafter increase to the end. Further, since

the decline in the average measured in Ls is slow during the first few combinations after the ninth, and increases rapidly as it approaches Combination 19, the cost in Ls rises *slowly* during the earlier combinations after the ninth and rapidly during the later ones. In like manner, the cost in Ns, though declining up to the nineteenth combination, does this *rapidly* only during the *earlier* combinations after 9, *slowing* up as it approaches the turning point at 19.

The last two paragraphs have shown us the course followed by the cost of production as measured in one or the other of the factors taken separately. It is now easy to see how the *total* cost per unit, that is, the cost measured in *both* factors must behave. Since cost, measured in either factor, diminishes *up to the ninth* combination, the average of the total cost must diminish up to that same combination. Again, since the average cost measured in *either* factor, increases *after the nineteenth,* the average of the total cost must increase after the nineteenth. This statement disposes of the first and last eight combinations. What, now, is to be said with respect to the remaining eleven? First, in so far as the cost for any one of these is influenced by the cost measured in Ns, that cost will tend to diminish clear up to the nineteenth combination, since the cost measured in Ns is so diminishing. On the other hand, in so far as the average of the total cost is being influenced by the cost measured in Ls, it will tend to increase from the ninth combination on, since the cost measured in Ls is so increasing.

Further, as already noted, the *upward* pull on costs exercised by Ls is relatively *small* in the earlier combinations after 9, but *rapidly increases* as they approach 19. So likewise, the *downward* pull of Ns is *great* in the earlier combinations after 9 but *weakens* as they approach Combination 19. From these facts it follows that the general trend of the total average is *downward* during the earlier combinations, *upward* during the later ones. But, since there must be a turning-

point between these two opposite trends, one or more* of the combinations must show a lower cost than the others, a *least cost*. In short, for any particular pair of prices for Ns and Ls, we are bound to have results like this: (1) during a shorter or longer series of combinations, cost will decline; (2) then a least-cost combination** will appear; and (3) during a longer or shorter series, cost will increase.

What, now, is to be said with respect to the location of the least-cost combination? In general, this must depend on *the relative prices of Ns and Ls.* As we have already seen, the influence of Ns must tend to lower cost with every movement toward Combination 19, while the influence of Ls must tend to increase the cost with every movement from 19 toward 9. It follows that the least-cost point will tend to move toward 19 under the influence of Ns and toward 9 under the influence of Ls. Which of these opposing forces will outweigh the other depends upon their relative magnitude, that is, the relative magnitude of the prices which the producer has to pay for Ns and Ls. If Ns are very costly, this will tend to push the least-cost point toward the nineteenth combination, and *vice versa.* If, for example, Ns cost 20 cents each and Ls $1, the cheapest combination will be the eleventh; while if Ns cost $1 each and Ls 40 cents each, the seventeenth combination will be the cheapest.

The foregoing discussion would seem to clear up pretty fully the problem of cost as affected by changes in combining proportions. Before going on, however, we ought, perhaps, to *contrast this problem of changing costs with that of changes in output as affected by changes in combining proportions.* As we have seen, the principle that output tends to increase less than proportionally is the same as the proposition that cost tends to increase *only on condition that we are measuring cost in the changing factor.* This point, brought out more sharply now that we are clear as to the behavior of

* Usually one.

** Or pair of combinations.

total cost, means that *the turning-point from the preceding stage to the one under consideration occurs in a different combination in the two cases.* For example, in our series of supposed combinations, the *output* is increasing more than proportionally up to Combination 9, after which it increases as far as Combination 19 less than proportionally; that is, for output, the ninth combination is the turning-point. As we have just seen, however, the turning-point for *cost* is practically always a combination later than the ninth. If we suppose the price of each of the factors to be just $1, the turning-point, the least-cost combination, proves to be Combination 14. Further, as was fully explained, this turning-point varies with every considerable change in the relative prices of the two factors. In short, instead of being at the same combination as the one at which diminishing returns sets in, it almost never occupies this place, and it may theoretically be in any one of the 11 combinations from the ninth to the nineteenth, inclusive. This point needs some emphasis, because not a few writers have carelessly identified the principle that, after a certain point, the proportional returns diminish, with the principle that, after a certain combination is reached, cost of production begins to increase.

We may add, as an application of the distinction between these two principles that in any particular case of the utilization of a factor of production, we may have passed the point of diminishing returns and yet not have reached the point of increasing cost. For example, if our Ns represent a furnace used in the heating of a house, and if the combination which gave out the largest amount of heat per unit of coal was the 13th, then if we are actually using the furnace in the 11th, we should be using it in a stage earlier than the least-cost stage, but not earlier than the diminishing-return stage. If, however, the day was very mild and we were using the furnace in the 7th Combination, we should be working it in a stage which was earlier than the diminishing-return one as well as earlier than the least-cost one.

Illustrative Problem

It is possible to be using a railroad plant in such a condition that, if we could increase the traffic a certain amount, we could increase the return per unit of the assisting factors, and so diminish the cost. But we might also be working that plant under such conditions that, though we could no longer increase the return per unit by increasing traffic, we could, after all, diminish the cost of production.

Explain how this could be.

At first thought it might seem that this precise locating of the least-cost combination would be of little practical importance on the ground that we would always take pains to be working in the least-cost combination. As a matter of fact, however, we would rather seldom be able to work our factors in this combination. In almost all situations, we have a body of relatively fixed factors over against a set which are constantly changing in quantity. The former are collectively called the *fixed* capital, the others the *circulating* capital. From the standpoint of costs, the former are often called *overhead* costs, the latter *prime* costs or *out-of-pocket* costs. Now, in the nature of things, the former cannot be nicely adjusted to every change in the volume of output. Any plant will naturally be planned and built on such a scale that, when supplying its normal output, it will be working in the least-cost combination.* But when a volume of output smaller or greater than this is temporarily called for, it will become necessary to work the plant in a combination earlier or later than the least-cost one. That is, it may be necessary and proper, much of the time, to be working a plant in the diminishing-cost stage or the increasing-cost stage.

* This statement needs qualification because of the fact that it will usually be thought best to plan for *future growth* of demand; so that the plant will more usually be built on such a scale that, for a time, it will normally be working in a stage somewhat earlier than the least-cost stage.

What has been said of a plant can with equal truth be said of a *business unit as a whole.* Here, as before, the plant or group of plants run by the concern will sometimes be working in a stage *earlier* than the least-cost combination, or just *at* that combination, or *later,*—in the first case, being in the condition of *diminishing cost,* in the second and third cases being in the condition of *increasing cost.* In addition, similar statements may be true with respect to the *organization* side of the business unit or company. The force of general officers, and of departmental superintendents, may be working in some stage prior to that of least cost or subsequent to that stage.

Finally, it would seem that the propositions which have been laid down with respect to single instruments, plants, and business units, may be affirmed with respect to social groups, districts, countries, even the world. Broadly speaking, any one of these totalities may at any moment be in such a condition that an effort to increase the aggregate of economic goods in order to satisfy the needs of a larger population would result in a diminishing expenditure of human effort and natural resources, or just the reverse. In the former case, the community under consideration would not have carried the utilization of its outfit of natural resources to the least-cost combination, though it might have carried that utilization beyond the point of diminishing returns. And an increase in population calling for a larger output of products and furnishing a larger supply of human productive power would enable the community to carry the utilization of its natural resources into a less costly and so more desirable stage. If, however, the community had already reached or even passed beyond the least-cost stage, the increase in population could only result in driving the industry *into,* or *further* into, the stage of increasing cost, and so, from our present point of view, could only result in harm.

2. The Effect on Cost of Trying to Increase the Output from an Industry as a Whole, There Being No Restriction on the Quantity of Any Instrument Used.

We now pass to the second phase of our problem: the effect on cost of trying to increase the output from an *industry as a whole.* What will happen to cost, if we try to get more copper from the copper industry, or more wheat from the wheat industry, or more automobiles from the automobile industry? Will the cost per unit remain the same as before or become larger or smaller than before? This question, like our original one breaks into two. (1) What will be the immediate effect on cost in a given case? In other words, in what stage is an industry at this moment, diminishing cost, constant cost, or increasing cost? (2) What will *normally* be the effect in a given industry? What effect is *characteristic* of that industry? In which of the three stages is that industry likely to be most of the time?

In order to answer these questions even briefly, we need to have in mind the principal causes which tend to affect the cost of production as output is increased. Of these there are three. The first cause to be considered is *the condition of the instruments already being used* in the industry in question. Are those instruments being worked in the stage of diminishing cost, or minimum cost, or increasing cost? Their condition in this respect, in so far as they are able to influence the matter at all, will obviously tend to establish a like condition for the industry as a whole. A second cause affecting cost is *the degree of difficulty experienced in duplicating the instruments* employed in an industry. Will the new machines, the new labor, and the new land needed to expand output cost the same as, or more or less than, our present stock cost us? The third cause is *the degree to which the industry is able to realize the advantages of large-scale production set* forth in an earlier chapter. The possibility of using large-scale methods must of course tend to put the industry into the condition of

diminishing cost; and the extent to which these methods can be used must determine largely how potent they will prove.

Now, when we are asking after the immediate condition of an industry, the potency of these three causes above enumerated depends chiefly on two considerations: (a) the state of industry in general, and (b) the nature of the particular industry involved.

First, to begin with the former of these two considerations, any particular industry is likely to be in the condition of diminishing cost when business is depressed, in that of increasing cost when business is booming, and in that of constant cost when business is in a state lying between these extremes. The reasons are evident. The depression means that demand for products is small and prices low. In consequence, an attempt to increase output in response to increasing demand would find the situation advantageous in at least three ways. The fixed capital of the industry would be working in a condition of low efficiency or high cost, and the expansion of output would enable producers to utilize that fixed capital in a more efficient, less costly stage. Again, the low prices of a period of depression would make the factors necessary for expansion more than ordinarily cheap. Finally, the increase in output would open the way for a fuller utilization of large-scale methods. All this would obviously be reversed at the height of a boom. Fixed capital would be working beyond the point of highest efficiency; the cost of factors would be very high; the advantages of large-scale methods would already have been utilized to the full. Finally, in the period between these extremes, these opposing tendencies would come to something like an equilibrium in which expansion of output brought neither less nor greater but the same cost.

But, again, the working out of these tendencies would be influenced by *the nature of the industry in question*. The influence of the possibility of getting more services out of fixed capital, of carrying that capital forward to the point of minimum cost, would signify little in the case of an indus-

try which used little of this type of capital,—say retail trade—but much in an industry such as mines and steel mills, which used a great deal. Similar differences would show in the influence exerted by the cost of the factors necessary to expansion. The industries utilizing a large amount of fixed capital and a relatively small amount of new factors would naturally be less affected by the increase in cost of the latter. The smaller the out-of-pocket expenses, the smaller the significance of this element. Thus, farming is not affected as favorably as many other lines of industry by the low prices of supplies prevailing in a period of depression nor as unfavorably by the high prices of those supplies characteristic of the top of a boom. Finally, the power to utilize the advantages of large scale production varies greatly in different industries. In farming, for example, the power is proverbially low. The necessary operations are very diversified and there is little repetition of operations which duplicate one another; the fundamental factor in this industry, the land, is also diverse in character, one part of a farm being fit for one purpose and another fit for another purpose; and, finally, the necessity for rotation of crops compels frequent changes in methods and output. All these causes, taken together, make high specialization in agriculture imprudent where it is not impossible. Accordingly this industry and others of a similar kind are less influenced in respect to costs by the general business situation. Their variation in cost as output expands is less considerable than in the other cases.

The foregoing discussion has in a large measure anticipated what we need to say concerning our second question: what is the *normal* tendency of cost in a particular industry as output is expanded, or what tendency is *characteristic* of that industry? The answer manifestly has little relation to temporary business conditions, being almost entirely a matter of the *nature of the business itself.*

Here the first cause—the condition of the instruments already being used in the industry—though relatively unimpor-

tant, is not without some influence. An industry which necessarily employs a very large amount of fixed capital will almost always have a considerable quantity of unused utilities tied up in it. The expansion of output will enable such an industry to utilize these tied-up services more completely and, to that extent, enable it to lower costs. It follows that such an industry is more likely than others, during much of the expanding period, and without respect to the state of industry in general, to be in a condition of diminishing cost.

As respects the influence of the difficulty experienced in duplicating instruments, this is naturally greatest in industries largely dependent upon natural factors. The extractive and agricultural industries, therefore, under the influence of this cause, are much more likely to be in the condition of increasing cost than manufactures or commerce. The narrower the field from which the natural factors can be drawn, the greater force will this cause exert. It will be felt much more in the producing of citrous fruit than in the producing of wheat and potatoes; more in platinum mining than in copper mining; more in copper mining than in iron mining. Finally, as to the influence of the third cause, an industry that consists largely of many similar or identical operations, and can therefore apply methods of large-scale production, will tend to be in a condition of constant cost, or even of diminishing cost. Manufactures are conspicuously of this type, and agriculture conspicuously not.

Looking back over this discussion, we see that all the different causes combine to hinder manufacturing from being in the condition of increasing cost, and to keep it in a condition of constant or diminishing cost. The manufacturing plant ordinarily has a large store of unused utilities; it depends relatively little on natural resources; and it is well adapted for the employment of large-scale methods. On the other hand, agriculture tends just as strongly, under the influence of all these causes, to be in a condition of *increasing cost*. It will seldom have any great volume of unused utili-

ties to put it into the condition of diminishing cost; the natural factors play a large part in its operation; and the chance of employing large scale methods is very slight. In the mining or extractive industries the result is much the same although the operation of the different causes is a little different. The mining industries make extensive use of fixed capital, hoisting machinery, machinery for crushing the rocks, facilities for transportation, etc. On this score we might be led to think of these industries as diminishing cost industries or even constant cost. And in fact when a new grade of mine has become available by a rise in price the industry is likely to be temporarily in the condition of constant cost. That is, it will be possible for a time to expand output far beyond the expansion of demand without any new increase in cost. This particular element mining has in common with manufacture. But the former industry naturally gravitates in general into a class with agriculture because of the influence of the second cause which we originally named. That is, the dependence upon natural factors is so great that the relative difficulty of obtaining these factors in the productive process offsets the advantage derived from the former element.

Summarizing the chief results of the preceding discussion we may set forth the following propositions:

(1) Any industry may be at some time or other in each one of the three stages: diminishing cost, constant cost, and increasing cost.

(2) Most industries are likely to be in the condition of diminishing cost if the demand for their product is so small that an increase in that demand would enable the industry to pass from small scale to large scale methods.

(3) Most industries may be for considerable periods in the condition of constant cost whether their general classification is in diminishing cost or increasing cost, because of the fact that at any particular level of cost there is possible an increase in output which is very large as compared with the expansion of demand.

(4) Practically all industries must some time reach the stage of increasing cost.

(5) In general the agricultural and extractive industries naturally class as increasing-cost industries.

(6) In general manufacturing industries classify as constant-cost industries.

Illustrative Problems

1. "Taken by large, the mining of copper is probably an increasing-cost industry." Defend that statement.

2. Argue for the reasonableness of the proposition that, if the marginal cost of producing copper should rise from, say, 20 to 25 cents per pound, at the latter figure this industry would probably be for a time a constant cost industry.

3. Give some reasons for believing that railway transportation is likely to be much of the time in the condition of diminishing cost (increasing returns).

4. An industry like the making of surgical instruments is likely to be in what condition as respects the relation between cost and volume of output? Explain.

5. Suppose that, while competition in the industry is still maintained, the conditions of production for a particular type of wooden chair are such that, if fewer than 1,000 chairs a year are produced, the cost per chair will be about $3; that, if output is between 1,000 and 20,000, cost will be about $2; that if it is between 20,000 and 50,000, cost will be $1; if between 50,000 and 500,000, 50 cents; if between 500,000 and 2 millions, 30 cents; if between 2 millions and 3 millions, 40 cents; if between 3 and 4 millions, 55 cents; if between 4 and 5 millions, 75 cents; if between 5 and 6 millions, $1.25; and so on.

(a) Suppose that in the year 1918, 700,000 of these chairs are produced; that by 1920 the output has increased to 1,300,000; that by 1925 the amount is 1,600,000; and that by 1940 it is 1,800,000. To what class of goods would these chairs belong during the period of 1918 to 1940, looked at as a whole?

(b) Suppose that between 1950 and 2000 the output should increase from 2,300,000 to 6 millions. To what class

of goods would these chairs belong during that 50 years, looked at as a whole?

6. During the great boom in the prices of farm products characteristic of the war period, farmers who heard comments by other classes on the point were wont to say: "But look what prices we have to pay for all sorts of supplies, seed, fertilizer, binding twine, labor, etc. This increase in costs makes big prices necessary." Criticise that reasoning.

CHAPTER X

MONEY EXCHANGE

With the present chapter we enter upon the study of that topic which forms the most important part of Economics, namely, Exchange. The starting point of this study is found in facts that have already been made familiar by the earlier chapters. First, we are creatures having many wants dependent for their satisfaction on our power to utilize certain material objects or conditions, called economic goods. Secondly, these goods are not as a rule supplied to us free from the hand of nature; rather they must be produced, created out of nature's materials by the application of human effort. Again, the method of supplying ourselves with economic goods which proves most advantageous is not for each to produce all the different kinds he wants, but rather to produce some one kind, whether a finished commodity or only a contributory service, and use this to get from his neighbors *through exchange* the other goods which he needs. Thus exchange is the very central, pivotal, fact in our whole economic order; every other fact and circumstance is directly or indirectly affected by it; and every aspect of the exchange phenomenon may therefore be expected to repay the most careful inquiry.

The first phase of the subject to be considered is a purely technical one, namely, the mediating of exchange, the effecting of exchange through a middle term. From this standpoint we distinguish two principal exchange processes: (1) Money Exchange and (2) Credit Exchange. In the present chapter we take up the former.

Section A. The Nature of Money Exchange

Although the facts of money exchange are familiar enough to every one, their essential nature and the causes lying back of them demand a moment's examination. The beginnings of exchange, as found in primitive societies, have always taken the form of *barter — the direct exchanging of goods for goods.* A man who has grain to spare and wants a canoe, gets into communication with a neighbor who has canoes to spare and wants grain, and a mutual transfer is effected. But this method, even in the most favoring conditions, is highly inconvenient. The man who has produced a surplus of grain which he wishes to exchange for a canoe is obliged first to seek out someone who has a canoe to dispose of and at the same time needs grain and who, further, needs grain in an amount exactly corresponding to the value of the canoe.

But this necessary coincidence between exchangers as respects the kinds and amounts of goods wanted and offered can exist but rarely, and, where it does exist, can be discovered only after laborious searching. It would not be hard to find men who want grain; but they may have no canoes to dispose of. So it would be fairly easy to find men who have canoes to sell; but they may not want grain; or, if any one of them does want grain, he may want only half as much as would be needed to pay for a canoe. As civilization advances these obstacles to barter become more and more serious. Occupations, tastes, and incomes grow more diverse, and a larger and larger number of workers produce things which, being unfitted to satisfy their own wants, must be exchanged, but which at the same time are wanted by only a few other individuals, and those perhaps widely scattered. For such persons—that is, for most of us—exchanging their own products directly for all the different kinds of goods they require would be entirely out of the question. For a manufacturer of

steel rails or mowing-machines or microscopes or surgical implements to go about trying to obtain, in trade for these wares, sugar or flour or a suit of clothes, would be not merely inconvenient but futile.

But no highly developed society tries, or ever did try for long, to conduct its exchange on the barter plan. In the earliest trade of which we have any record, men were already making use of *a medium of exchange* — some go-between which each one sought to get in exchange for his goods and, having gotten, used to buy other goods. The exchange medium consists of some concrete good of such a nature that everyone will be willing to accept or to relinquish it in payment for other commodities; and of such a nature that it can readily be divided or enlarged to make up an amount exactly equal in value to any object which is offered against it. With the assistance of such medium, the troubles of the man who has grain to dispose of and wants a canoe quickly disappear. He simply sells his grain to the different persons who want grain, they giving him from their easily divisible store exactly as much of the exchange medium as the grain is worth; and then, taking to a canoe maker the medium thus obtained, he pays over as much of it as is necessary to purchase a canoe.

Exchange, then, is mediated by money, and wherever the money institution exists its principal function is to serve as the medium of exchange. It perhaps ought to be remarked in passing, however, that just because money is the medium of exchange, it almost inevitably takes on other functions. It serves, for one thing, as *a measure of value*. Being exchanged against all other goods, it naturally becomes the thing in which the values of all other goods are computed and expressed. It sometimes performs this function even when not actually called upon to serve as the middle term in exchange, as for example when two people estimate the value of their respective goods in terms of money, and yet proceed to exchange them directly, barter fashion. In fact, the value-meas-

uring function of money often exists quite independently of its exchange function, and often seems of almost equal importance. Again, money or its equivalent, bank credit (which comes up for treatment in the next chapter) serves as a *medium of accumulation,* the instrument through which accumulations of capital are immediately effected. Closely allied to this last is the service as *loan medium* since, as we know, the man who borrows capital must usually obtain it first in the form of money or bank credit. Money is also utilized as the *legal means of payment,* in the discharge of taxes, fines, etc. Finally, in backward countries it is much employed, along with precious stones, as a *storer of wealth* by men who, seeking to save their property from robbers or tyrannical governments, turn it into these easily concealed forms. Various other functions of money could doubtless be distinguished in a fuller analysis. The central one, however, the one with which we are chiefly concerned in this course, and hence the only one calling for more than passing mention, is to serve as a *medium of exchange.*

In the earlier forms of exchanging society, the exchange medium or go-between was always some use-commodity, that is, a commodity which people generally wanted for some purpose to which it could be put directly, as for example, cattle, hides, tobacco, lumps of salt, or cubes of tea. But, with the passage of time and the increase of wealth, people got in the way of using as their medium of exchange something specially manufactured and set apart for this function. It is only when this stage is reached that we can properly talk about money; for by money, we mean *an instrument specially made for and adapted to the work of mediating exchange,* and to those other tasks naturally performed by the exchange medium.

For many centuries after its introduction, the money of even the most advanced countries was little more than an aggregation of rather crude coins of very few varieties or

sizes. But with the progress of industrial society, the money of each country has come to constitute an elaborate system containing many different kinds of money adapted to the performance of different functions, and all more or less perfectly co-ordinated into a coherent, self-consistent whole. We must now explain the principal features of such a system.

Section B. **The Monetary System**

1. The Denomination System

The first element to be remarked in the American or any other monetary system is the scale of denominations, the names employed for expressing quantities of money. The need for some means of doing this is easily seen. Since money is the common thing which exchanges against all other goods and since these goods range in value from almost nothing to millions of dollars, it is necessary that we should be able to make up sums of money from the highest to the lowest. Hence the stock of money is *divided into coins or bills of various sizes.* But we must be able also to describe or express the sums made up; and for this reason, each kind of money has a name of its own, and has a well recognized quantitative relation to each of the other kinds. Or, rather, one kind is taken as a unit, and all the others stand in a recognized quantitative relation to this one.

Money denominations may thus be distinguished as Primary and Secondary. The primary denomination, more often called the *monetary unit,* is fundamental in the system, the other denominations being referred to it in defining their quantity. The precise significance of this statement is best explained by comparison with an analogous case, the unit of liquid measure. The gallon constitutes this unit, and other quantities are described as fractions or multiples of a gallon: thus a quart is a fourth of a gallon and a pint one-eighth of a gallon; thirty-one and one-half gallons make one barrel, and

sixty-three gallons (two barrels) make one hogshead. Similarly, in the American monetary system the unit is one dollar, and all secondary denominations are regarded as fractional parts or multiples of the dollar. The cent is one one-hundreth of a dollar, the dime a tenth of a dollar, the twenty-five cent piece a quarter of a dollar, the half-eagle ten dollars, and the eagle twenty dollars. In other countries, these denominations are different from the American and usually from those of any other nation. But in all of them some kind of a denomination system exists, in that one quantity of money is established as the unit of measurement, and all others are defined in terms of that unit.

2. The Monetary Standard

The second essential element in a monetary system is the *monetary standard*. The special office of the standard is to *fix the meaning or value of the monetary unit*. For purposes of explanation, let us again refer to the analogue of liquid measure. As we all know, there exist at the present time thousands of liquid containers called a "gallon." But, due to various circumstances, they are not exactly equal in their capacity. Now, if the various containers were allowed to differ even slightly in capacity, while all were known as gallon containers, the significance of the quantity called a gallon would change every time a new container was used, and the way would be opened for an infinite amount of error or cheating. How, then, is uniformity to be attained? How bring it about that the gallon shall always signify one thing? Simply by requiring that a true gallon measure shall be able to hold a certain amount, by weight, of some one substance, no more and no less. The standard chosen is pure water under prescribed conditions of temperature and air pressure. The amount is 8.33 pounds. This fact we express by saying that 8.33 pounds of pure water is the standard of liquid measure in the United States. If any receptacle proves upon examination to hold

more or less than this standard amount, it is not a true gallon, and to make it so one must measure it something less than full, or full and something over. Only by being equal to the standard gallon can it hope to pass as a true gallon container.

The monetary system is in this respect the same as that of liquid measure. The money unit is one dollar. But we have many different pieces of money which are represented as one dollar—a gold, a silver, a greenback and a bank note piece, as well as two fifty cent pieces, a hundred pennies, and so on. Now, all these so-called dollar pieces have very different degrees of intrinsic value; the gold dollar is worth just as much whether it is coined or melted into a shapeless lump; the silver piece is worth as much as gold when coined, but very much less when melted; the paper in itself is worth practically nothing. Now, if these various pieces were allowed to differ even slightly in value while they were still known as dollar pieces, the significance of the dollar would change with every change in the kind of money used, and any accurate reckoning or dependable business agreements would become impossible. But uniformity is established here also by means of a standard. Within the boundaries of the United States, in every conceivable connection unless otherwise specified, one dollar means the amount of value which attaches to 25.8 grains of gold, nine-tenths fine. This amount of gold is known as the monetary standard, and against it every so-called dollar piece of actual money is judged. A true dollar must contain the same value as a piece of gold nine-tenths fine, weighing 25.8 grains. And if any so-called dollar happens at any time to contain more or less than this standard amount of value, it is not a true dollar, and to make it so, something must be taken away or something added.

3. The Different Kinds of Money and Their Functions

We have explained the denomination system and the standard essential to any monetary system. We must now distinguish the different kinds of money in which the denominations and the standard are embodied and comment on their several functions.

First, we have the standard money, that particular kind of money which *immediately embodies or represents the monetary standard*. As already noted, the standard in the United States is 25.8 grains of the metal gold, nine-tenths fine. But we do not, of course, actually make any use in ordinary commercial relations of the mere metal gold, unmanufactured, in the form of dust or lumps. Neither do we have such a lump of gold locked up at Washington to act as a standard for our money unit, as we have a platinum-iridium bar locked up in that city to act as a standard for units of length. The plan we actually adopt is to issue one particular kind of money called standard money, which is kept equal in value to the real standard, and, just as far as possible, to keep the meaning or value of the dollar in every other kind of money, (as well as in all credit documents, prices, etc.), the same as the value of this standard money dollar. In the American system, the standard money is a coin made of the standard substance, gold, and containing just the amount of that standard substance which constitutes the standard. By devices which will more naturally be explained in a later connection, this kind of coin is all the time kept equal in value to the quantity of gold bullion which it is presumed to contain; so that it may be said to *embody* the real standard supposed to lie behind it.

If, as just observed, the value of the dollar in other kinds of money, in credit documents, prices, etc., is kept equal to the value of the standard dollar, this means that the dollar in these other relations is not directly kept equal to the value of a lump of gold weighing 25.8 grains. It is kept equal to the

value of the standard money, gold coin; and the latter, in its turn, is kept equal in value to the lump of gold. If by any process the gold coin and the lump of gold should be separated in value, the dollar in other moneys, in prices, etc., would follow the gold coin rather than the bullion. This compels us to notice the distinction between the immediate monetary standard, the standard money, and the standard behind that, known as the ultimate standard, which consists of a lump of metal.

In the American system, as just indicated, the standard money, being made of the same metal and the same amount of metal as that contained in the ultimate standard, may be said to embody the ultimate standard. This is also the plan followed in most good monetary systems. It should be noted, however, that such an arrangement is not absolutely necessary; and we may better understand the relation between standard money and the ultimate standard by observing a quite different way in which substantially the same end could be accomplished. It is perfectly possible, theoretically, to have a system in which standard money is made of some other substance than the one which holds the place of ultimate standard. Thus we might issue a paper money which, by one device or another, would be kept constantly equal in value to 25.8 grains of gold, while the dollar in all other forms was kept equal to that particular kind of paper money. In such a system, 25.8 grains of gold would be the ultimate standard, though standard money was paper money.

The plan of having a standard money which does not embody the ultimate standard, but is kept at par by some special device, suggests various schemes, which have been favored from time to time, for improving the ultimate standard. Thus, some economists believe that, instead of having a single substance as the standard, we ought to use a large number, say 100 or more, in order to avoid too great and rapid changes in the value of the standard. A natural way to work out such a

plan would be to issue paper money as the standard money, and set up devices for keeping this paper money equal in value to the list of goods chosen. Another way would be to have for our standard money a coined money, as at present, but to redeem that money in varying amounts of gold, always larger than the amount in it, and always so adjusted as to keep the value of the coin equal to that of the list of goods originally chosen as the standard.

Leaving this study of the nature of standard money, we must now add a word with respect to its functions. The standard money of our system, gold coin, though to a limited extent used as a medium of exchange in ordinary trade, is chiefly confined to two offices: (1) serving as the money of international trade, and (2) maintaining the gold standard by maintaining the convertibility of other forms of money. Standard money serves best as the money of international trade because it has a bullion or substance value as great as its nominal value, whereas other moneys do not. A man who accepts it, therefore, need have no misgivings lest he get less than he bargained for. To a limited extent international dealers offer and accept non-standard moneys and, as we shall see in the next chapter, credit. But, in general, they must be paid in cash; and that cash must be something which is worth its face value. Hence they demand standard coin, or, even better, bullion or bar gold which has not been manufactured into money at all.

But, while gold or standard money is needed for international trade, in the domestic exchange of most countries it is very little used. The chief function of gold money within a country is to maintain the convertibility into gold of other kinds of money and so to maintain the standard of the system. The standard, we know, has as its function the determining of the meaning or value of the monetary unit in all kinds of money. But most kinds of money, other than gold, for example, silver coin, copper coin, bank notes, etc., have in

themselves as substance much less value than they claim on their face. A silver dollar, as silver, was, until quite recently, worth less than fifty cents; a hundred copper cents are rarely worth more than fifteen cents; a paper dollar, as substance, has no appreciable value. It naturally follows that some effort is needed to keep these different forms of money at par with, or equal in value to standard money. There are various ways of accomplishing this result, but none really certain except one which makes it possible to get gold money in exchange for any other kind. It is not necessary that we be able to exchange other moneys for gold in any and every case, but it is necessary that we be able to obtain gold when we really need it,—for example, to make payments in other countries,—and that without being obliged to pay a premium or suffer inconvenience or delay. If at any time when we greatly needed gold we could not obtain a dollar of it for a dollar of other moneys, those other moneys would inevitably cease to be equal in value to the standard money.

In concluding this treatment of standard money, a word should be added concerning a form of paper money which is virtually equivalent to gold coin. I mean the gold certificate. This is a document certifying that the quantity of gold mentioned on its face has been deposited in the Federal Treasury, and is held ready to be delivered in exchange for the certificate. The certificate is thus nothing more than a warehouse receipt for the gold coin in deposit. As long as the owner only wishes to hold this coin as a reserve or to use it in settlements at the clearing house, the certificate is all he needs, and is safer and easier to keep and carry about. And when a time comes that he really must have his gold for use in international settlements, he can always get it by presenting the certificate.

We have explained the nature and functions of a standard money, basic money, as it is sometimes called. We must now comment briefly on the other kinds generally present in the

systems of our time. First, it is not uncommon to have a quasi-standard money consisting of a note issued by the government or some special institution, a note which is legal tender in most or all relations, and redeemable in standard money. Such a money will perform most of the functions of standard money. Being directly redeemable in gold, every one will receive it readily, and only those who for some reason require the metal itself will insist on using the treasury note to get gold. Moneys of this sort, though not seldom employed in everyday circulation, have as a more distinctive characteristic the fact that they in large measure constitute the bank reserves of the country, particularly the central reserves. Doubtless, these reserves ought to contain a considerable quantity of gold itself; but the treasury notes answer almost equally well so long as the treasury keeps ample gold reserves to redeem them.

The remaining moneys to be found in any system with which we are familiar are to be used mostly as ordinary media of exchange. First come the notes of the National banks payable at the issuing bank and also at the Federal treasury, and having the status of legal tender to all national banks. Next come the new notes issued by the Regional Reserve banks. These notes are hybrids somewhat difficult to describe. In form they are treasury notes, that is, they are promises to pay, signed by the treasurer. But the Regional banks are required to assume the responsibility for them as if their own officers had made the signature. These notes are a full legal tender, and are fit for bank reserves as also for circulation.

A third sort of paper money is the silver certificate, which, in form, is a warehouse receipt for a corresponding amount of silver dollars, but which, in practice, is a bill used for what has been called "large change." It constitutes the major part of our everyday medium of exchange. It is exchangeable only for silver dollars, but it is worth its face value in gold just as if it were redeemable in that metal.

The remaining moneys of the country consist of various sorts of coin. In general, they are literally or virtually subsidiary coins, though, in strict usage, this designation is limited to fractional silver. We therefore begin with explaining the distinctive characteristics of subsidiary coins. First, these coins are put out in small denominations, being specially intended for serving as a medium of exchange in minor transactions and as tools for "making change." Again, they are made of inferior metal, metal having low specific value; for a coin of small denomination, if made of valuable metal, would be too small for convenience in handling. Subsidiary coins are characterized also by shortness in weight: they contain a smaller amount of metal than would seem to be called for by their nominal value. As a result, they are worth less as mere pieces of metal than as money; so that, unless the value of the metal changes greatly no one will melt them for the sake of the metal they contain. Their circulation is thus assured.

Again, subsidiary coins are strictly limited in the amount coined. They are issued only by the government, and the issue is limited to the amount which experience shows is really needed for the purpose of trade. This policy is primarily intended to insure the coins of this sort against falling in value below their nominal value; and it has practically always been successful. So long as the needs of business keep subsidiary coins employed, so that few, if any, persons find themselves loaded up with an excessive stock, the coins remain at par. In the United States, this result is still more fully assured by a provision that the United States treasury will redeem such coins at par in legal money.

Still another characteristic of subsidiary coin is the limitation of its legal tender prerogatives. This provision has two objects. First, it is intended to hinder any person from burdening creditors to whom he is making payment with a great quantity of inconveniently heavy coins. Second, it is intended to hinder subsidiary coins from displacing the standard money

already established and putting themselves in its place,—a thing which might happen, if these coins were to become less valuable than standard money while still a full legal tender. How this would be brought about will be better understood when we have studied the principles governing the monetary standard given in Chapter XXII.

A final characteristic of subsidiary money, not universal, but present under our system, is redeemability. The purpose of this provision—to insure that the money shall be kept at par—has already been explained, and needs no further comment.

The last few paragraphs have dealt with the sort of coin which is universally recognized as "subsidiary." A word or two should now be devoted to the varieties not always, or perhaps usually, counted in this class. First, we have token money or billion, consisting of very small coins made of cheap metals, for example, our nickel five-cent pieces and copper cents. This type of money was evolved earlier than the coins usually designated as subsidiary. But, theoretically, there is no good ground for distinguishing them from the latter; they usually have all the characteristics above enumerated for subsidiary coins proper.

The other money which is virtually, though not literally, a subsidiary coin is the silver dollar already alluded to on page 151. This cannot be strictly described as a subsidiary coin, because it *lacks* the characteristic of *limited legal tender* which is present in true subsidiary coins everywhere, and also lacks the redeemability of American subsidiary coins. *In effect, however, it is a subsidiary coin.* It has most of the characteristics, and behaves as if it had them all. Although not limited, as are true subsidiary coins, in legal tender prerogatives, it does not displace the standard. And although not redeemable, it remains at par in spite of the fact that its metal value is much below its face value. These facts, however, should not lead us to think that the silver-dollar situation is an en-

tirely satisfactory one. On the contrary, most specialists are convinced that the silver dollar ought either to be withdrawn altogether, or frankly and completely given the status of subsidiary coins.

Illustrative Problems

1. Illustrate with concrete examples the drawbacks of barter as a method of exchange.

2. Illustrate the use of money as a measure of value in a case of barter.

3. In primitive communities the media of exchange have usually been objects desired for direct use and also objects commonly produced in the community. Give some reason or reasons for each of these facts.

4. During the first part of our history as a nation, silver fractional coins had the prerogatives of standard money, i. e., were freely coined and had the status of full legal tender. But in 1853 Congress deemed it necessary to put this kind of money into the position of subsidiary coin. How do you explain the fact that Congress got around to this opinion at about that particular time?

5. Between 1890 and 1896 it was a common practice to put into notes and mortgages a clause providing for payment in gold coin of legal weight and fineness. Try to get the proper explanation of this fact.

6. When I say that 12.9 grains of gold .9 fine is the monetary standard of the Philippines, what is meant?

7. In the United States in the year 1868, when gold payments on treasury notes were suspended so that a gold dollar was commonly worth from $1.20 to $1.40, one of the great political parties proposed to pay the national debt in these irredeemable treasury notes,—which proposal, however, was defeated in the Federal election of that year. In discussing the matter, writers commonly speak as if the national creditors objected to being paid in treasury notes rather than gold; whereas no one of them probably would have thought of asking for literal gold money. Explain in scientific language what was the precise issue of the controversy.

CHAPTER XI

CREDIT EXCHANGE

SECTION A. The Process of Credit Exchange

We showed in the last chapter why exchange was not and could not be to any great extent conducted on the barter plan, and why a mechanism of exchange had been built up, consisting of specialized processes and instruments or media. We have thus far discussed one of the processes—money exchange—and one set of instruments,—money. We now pass to a second process called Credit Exchange, and the set of instruments employed by it, called Credit.

Money exchange, as we saw, is superior to barter chiefly from the fact that it uses a single standardized medium which every one is willing to accept. But it is easily possible to overstate the convenience and facility of trade resulting from the use of this device. Every one is willing to accept money, we say; but as a matter of fact, if a man sells a thousand or ten thousand dollars' worth of wheat or meat or land, he usually is very far from willing to accept actual money in exchange. In former ages, when actual possession of the money metal was prized as a sign of distinction, possibly most individuals received without hesitation practically all the money they could get. But this is not so today. No man however fond of wealth desires to have a bushel of money dumped on his floor. The heap would add little to his distinction, and would greatly embarrass him.

But the use of money may be inconvenient for other reasons also. It is unlikely that any would-be purchaser will have a bushel of money to give. Because of the difficulty of guarding it, and because of its entire uselessness when not in active circulation, even the richest men prefer to keep in their

possession at any one time only a small quantity sufficient to supply their every-day wants. When one requires a large lump sum, then, how shall he obtain it? Wait till it gradually accumulates, hoarding it as it comes in; scurry here and there, selling a little something to this man and a little something to that till he gets together a sum sufficient for his purchase? Furthermore, if he buys at a distance, at the extreme end of the continent or beyond an ocean, must the purchaser undertake the toil and expense and danger of transporting the money and delivering it into the seller's hands? By no means. These difficulties are obviated by the use of a still more highly developed medium of exchange, called *Credit*.

Credit exchange is in its essence an exchange of goods not for money but for a *promise to pay money*. It is trade based on *agreement*, unaided by any concrete medium of exchange except such as may consist of writing on a piece of paper. Credit is a promise to pay money, and if the promise is trustworthy, the creditor will not demand immediate delivery of the money itself. On the contrary, since he may before long be purchasing, from the debtor, goods for which he cannot conveniently deliver cash, he will probably in his turn present promises. Now, when it comes about that each man holds from the other promises to pay money, no actual payment will be required from either. If Mr. A owes Mr. B twenty dollars for a load of hay, and Mr. B owes Mr. A twenty dollars for a hog, it surely would be a waste of time and effort for either to present cash. Rather, they can cancel their promises, and so both men will be spared the trouble of either receiving or delivering sums of actual money. Around this simple idea has grown up the complicated process called credit-money-exchange, or more shortly credit exchange, which has in English-speaking countries an importance beyond all measure.

The nature of credit exchange can be made clear by beginning with credit exchange between *two* persons only,—*book*

credit, as it is usually called. In a case of reciprocal buying between two persons *at the same time,* it is obviously needless for each to deliver the payment money. The natural procedure is to compute the balance of the mutual obligations and have that balance paid by the one against whom it falls. Further, if the two traders can trust each other, a similar procedure is possible where mutual purchases are made *at different times;* for each can sell to the other *without getting his pay,* or by receiving as pay *the right to claim money later;* and at some future date the reciprocal obligations or debts thus created can be partly, perhaps almost entirely cancelled, leaving only the balance to be cleared in money. In this simple case, we have the essential feature of credit-exchange; it consists in *bringing about a* reciprocity of debts *so that a considerable* cancellation *is possible and actual money is needed only to pay the balance.*

In the instance cited we have reciprocal buying, reciprocity of debts, and so a possible cancellation of debts between *two* persons. But circumstances of this exact sort are comparatively rare. We do not usually buy from, and sell to, the same individual or set of individuals; we are far more likely to buy from one set and sell to another. Thus, the farmer sells his corn and oats to the elevator company and buys nothing from that company whatever; while he buys clothing, carriages, lumber and other commodities from a set of merchants to whom he sells nothing whatever.

Even in this situation, however, a true reciprocity of debts exists,—only it exists between any one person and all the *rest taken together.* If the farmer could in some way take what he owes every one and set it over against what every one owes him, a practically complete cancellation would be possible. He may not sell anything to that particular one of his neighbors from whom he has bought something; but he will almost certainly sell to *some* of those neighbors. As an offset to their claims against him, *taken as a whole,* he can

therefore bring forward claims in his favor against them, *taken as a whole.* If, then, we can arrange to have all or many of a man's debts to his neighbors *pooled,* lumped together, and all of their debts to him *pooled,* cancellation may easily be effected. We can, and do, carry out this plan by making some single institution a sort of *common debtor and creditor,* and allowing it to effect settlement with each of its patrons, as itself the representative of *all the rest.*

The institution which commonly serves different individuals in this capacity is the so-called commercial bank or the commercial department in some other type of bank. The primary functions of such an institution are, in ordinary banking language, deposit and discount: to care for the current funds of its patrons and make short advances to them as the need may arise. But an institution which takes care of its patrons' current funds almost inevitably is called on to make payments for them—at least this is the case in most English speaking countries; and in doing that it naturally drifts into the position of common debtor and creditor. When Mr. A, one of the bank's depositors, orders the bank by check to pay $20 to another depositor, Mr. B, and Mr. B deposits the proceeds of the check in the same bank, this act makes Mr. A the debtor of the bank for $20 and makes Mr. B the creditor of the bank for the same amount. When, now, some other depositor orders the bank to pay $18 for him to Mr. A, the latter becomes a creditor of the bank for this $18, which is entered on his account, cancelling all but $2 of the debt created by A's $20 check in favor of B. So, when B gives still another depositor of the bank a check for, say, $25, he thereby becomes the debtor of the bank, the pooling agent, for $25, which is cancelled by book entries against his former credit of $20, leaving a debit balance of $5.*

* It should be remembered that each depositor is expected to keep some balance with the bank, a practice which insures that the bank can safely assume the position of debtor on behalf of the man who writes a check in favor of another depositor.

Thus the process goes on indefinitely. Every check drawn by A makes him a debtor of the bank for the amount named, and every check drawn by another depositor in A's favor makes him the creditor of the bank for that amount; and the same is true of B or C, any one of the whole list of depositors. In short, we see perfectly fulfilled the conditions mentioned as necessary for the working of credit exchange. Reciprocity is established between debts or claims; A's debts to other people are set over against other people's debts to him. And, given this reciprocity, cancellation becomes possible, and so credit exchange—exchange without the use of money—becomes possible.

In the preceding illustration we have supposed that Mr. A and his neighbors all keep deposits in the *same* bank. But generally there are several banks in one community; some are used by a part of the population and some by another part; and Mr. A, whose transactions we may suppose are many and various, will have debits and credits to settle with the patrons of banks other than his own. At first sight, this seems to result in a return to cash exchange, since a check on one bank deposited with another will not be debited to the former bank for any length of time, but will be promptly presented for cash. In fact, however, the bank which is debtor because of the supposed transaction will doubtless have come into possession of checks on the creditor bank which it can use to offset the claim against itself. Even if it has at the time no claims against *that particular bank,* it will certainly have some against other banks in the community; and, since all the banks will settle their mutual obligations on a pooling plan, these claims against other banks will do just as well in offsetting its debits as claims against its actual creditor.

We thus come to another very important development of credit-exchange, the clearing, or settlement of mutual obligations among a number of different banks. Here the same device which enables Mr. A to adjust his debits and credits with

a minimum use of actual money, is applied to settle the mutual obligations of banks. In general, the plan is to set up a common agent, a clearing-house association, which becomes the creditor of each bank for claims of all other banks against it, and becomes its debtor for claims against all other banks. At regular intervals a balance is struck and the one which proves to be debtor, the bank or the clearing-house, pays the balance. Naturally, the clearing-house settles first with the banks which prove to be debtors, and then uses the money thus obtained to pay the creditor banks.

Our discussion has thus far had to do with exchange carried on through banks between persons in the same community. Another and much older form is *inter-local* credit-exchange, or what we call **Exchange** in the preeminent sense. This form is resorted to for making payment between different cities and countries with a minimum use of money. Here we have again the same familiar device: claims for and against different countries, debits and credits, get into common hands so that reciprocity is established and cancellation is made possible. Certain institutions in each country, banks or exchange houses, buy up all the claims on the other countries and also sell for the use of their patrons claims on those other countries. Thus, they become the common creditors and the common debtors of the dealers of their country in its relations to others; and the debit and credit relations which they maintain with other countries are maintained with institutions similar to themselves. It therefore becomes easy to set the debits of a country over against its credits, cancel these in so far as they are equal, and effect a complete settlement by paying a small balance in money.

Section B. Instruments of Credit Exchange

Just as coins and bills of different substances constitute the instruments or media used in money exchange, so a variety of paper documents constitute those used in credit exchange. Some

of these take the form of a direct promise between man and man to deliver a specified amount of money at a specified time. But, inasmuch as the promise must ordinarily be made good through the agency of a third party or institution, most of these documents are really *orders* made by one person, called the drawer, in favor of another person, called the payee, upon a third person or institution, called the drawee. If the payee does not himself find it convenient to present the document to the drawee for cash or for cancellation against his own promises to the drawer, he can transfer it to another person by endorsement—writing his own name across the back, with or without some specific directions as to payment.

The most familiar credit instrument is the bank *check* which has already been mentioned. It is an order for the payment of money drawn by a man upon the bank where his own money is kept in deposit. It is used principally within a single town or limited community where the drawee bank is located, and where both drawer and drawee are known. Interlocal exchange makes little use of the check, preferring instead other instruments specially adapted to its purposes. Most important of these is the bank draft, an order for the payment of money *drawn by one bank on a bank in another place, in favor of another party*. A bank draft is employed when the initiative in settling a debt is taken by the debtor. He buys the draft, and mails it to his creditor; the creditor then gets cash or credit for it from his bank; and the bank, if not itself the drawee named in the draft, proceeds to collect from the bank which is. Another class of exchange instruments similar to the bank draft, are so-called *money orders,*—postal or express orders. These are drawn by local agents of the institution issuing them upon the central office, are sold to the debtor, and sent by him to the creditor, who collects from the agent of the issuing institution located in his own town. When the initiative in settling a transaction is taken by the seller or creditor, the instrument employed is named a *bill of exchange,* though

this phrase is also often applied to international bank drafts. Such a bill of exchange, also called a commercial draft, is an order for the payment of money *drawn by a seller or creditor upon his debtor in favor of the drawer or his banker.* (If in favor of himself, he endorses it over to his banker.) The creditor turns the draft over to his banker and gets credit for the amount named, whereupon the banker sets out to collect from the drawee through banking correspondents.

Section C. The Rate of Exchange

A matter of much importance in connection with credit-exchange is the **rate of exchange,** particularly the rate in foreign exchange. As we have just learned, money payments between the people of different communities are effected through agents who assume the position of common creditor and common debtor for each community. An agent in one community buys up money claims on other communities from persons having such claims to dispose of; and he sells money claims on other communities to persons needing them to make payments in those other communities. Thus, there is developed a traffic in such claims, a traffic in "exchange," as it is called; and the price at which exchange sells—at least exchange between different countries—is called *the rate of exchange.* Stated more formally: *the rate of exchange is the price in one country paid in the money of that country for the right to dispose of a unit of the money of some other country in that other country,* or at least in some country other than the one in which the purchase is made. Thus, if I wish to buy from my bank the right to have five pounds sterling paid on my behalf in London, and find myself obliged to pay for that right $4.87 per pound, I say that the rate of exchange on London is $4.87.

In domestic exchange,—exchange between different parts of the same country,—the rate of exchange usually means the *difference* between the face value of an instrument of ex-

change and what is paid for it. Thus, if I say that the Chicago rate of exchange on New York is 15 cents premium per thousand, I mean that, in selling a claim for $1,000 on New York, a Chicago dealer would get his $1,000 and fifteen cents additional.

In working out the price or rate of exchange, the market starts with the natural value of the unit of the money wanted, as measured in the money with which it is bought—that is, the value as it would be if there were no difference of place, if the buyer of English money bought it right in New York to be delivered in New York. If the two countries have the same standard, then the natural value of either money in terms of the other can be ascertained by a simple operation in division. Thus, one dollar contains 23.22 grains of fine gold; and the English pound, 113 grains. The pound, therefore, is naturally worth in our money as many dollars as 23.22 is contained in 113, or $4.866. This natural price of a foreign money unit, measured in terms of the home money, is technically known as *the par of exchange*.

The rate of exchange varies above or below the par of exchange according as the demand for exchange at par is in excess of the supply or *vice versa*. If the United States is selling great quantities of cotton and wheat to the people of Europe and buying comparatively little from them, then claims on Europe will be abundant and, other things being equal, cheap; those Americans who have claims on Europe to sell will be obliged to sell them cheap, while those who need such claims can buy them cheap. On the other hand, if the United States is buying many goods from the people of Europe and selling them comparatively few, then claims on Europe will be scarce and, other things being equal, dear; those Americans having claims on Europe to sell can obtain high prices, while those needing to buy such claims will be obliged to pay high prices.

These variations of the rate of exchange above and below par are *limited by the cost to exchange houses of transporting the money itself from the one place to the other,*—it being understood that cost includes a reasonable profit to the exchange dealer. Any wider variations would give exceptional profit to the exchange dealers, which would stimulate their competition, and so reduce the difference to this amount. In London exchange, the possible variation from par is commonly in the neighborhood of three cents; in other words, the rate ranges from about $4.835 to $4.895.

Illustrative Problems

1. Suppose that you send a check on the National Bank of Ann Arbor to the Newcomb-Endicott Company of Detroit to pay for some goods purchased; and suppose that when the check finally gets back to you it shows the following endorsements: (1) Pay to the Peninsular Savings Bank of Detroit, the Newcomb-Endicott Company. (2) Pay to the State Savings Bank of Ann Arbor, Peninsular Savings Bank of Detroit. (3) Paid through the Clearing House, State Savings Bank of Ann Arbor. Trace the course of this check from the endorsements.

2. Henry T. Crouch of Erie buys $1,275 worth of wheat from T. C. Craig of Detroit.

(a) Suppose settlement to be effected with a wheat bill of exchange (also called a sight draft) and write out the substance of the bill which would be used.

(b) Suppose settlement to be made with a check and write out a facsimile (in substance).

(c) Suppose settlement to be made with bank draft and write out a facsimile (in substance).

3. Whichever method of settling the transaction involved in the last problem is used, the particular credit document employed will inevitably take quite a journey from bank to bank while it is being collected.

(a) Describe an imaginary course, which it would very likely take if it were a sight bill of exchange.

(b) Same, if it were a check.

(c) Same, if it were a bank draft. (Compare Problem 1.)

4. We buy a good deal from Brazil, but sell her little. We sell a great deal to Great Britain, but buy from her much less. Can you imagine a way in which one of these trades furnishes a medium of exchange for the other?

5. Oct. 1, 1907, the different banks of Ann Arbor brought to the clearing claims against each of the other banks as follows:

No. 1 against		*No. 2 against*		*No. 3 against*	
No. 2	$2213.19	No. 1	$4284.78	No. 1	$4974.66
No. 3	1865.09	No. 3	2172.45	No. 2	1607.79
No. 4	2415.96	No. 4	3043.18	No. 4	1093.24
No. 5	512.21	No. 5	655.87	No. 5	625.88
Total	$7006.45	Total	$10156.28	Total	$8301.57

No. 4 against		*No. 5 against*	
No. 1	$3078.73	No. 1	$ 332.15
No. 2	1793.16	No. 2	377.17
No. 3	973.73	No. 3	1515.46
No. 5	4633.96	No. 4	181.56
Total	$10479.58	Total	$2406.34

Compute the balance for or against each bank.

6. Supposing all the claims of the Ann Arbor banks on one another which appear in the last problem to have consisted of checks which were used in the regular course of business transactions;

(a) What must have been the total volume, expressed in money, of the transactions thus effected?

(b) How much actual cash was needed to effect these transactions?

(c) What per cent of the total volume of transactions did this cash amount to?

(d) What is the significance of these facts?

7. Not many years ago it was estimated that the *per capita* money circulation of England was about $11 while that of France was about $51; yet, as every one knows, there was at least as much business *per capita* carried on in England as in France. How could the difference in the amounts of circulating medium required be explained?

8. Some writers represent the development of credit-exchange as a return to barter. Show that this is not true—that credit-exchange is still *mediated* exchange, nay more, that it is *money* exchange.

9. Suppose I wish to buy a bank draft for £200 on London. With London exchange at $4.855, what should I be able to get the draft for?

10. A wheat exporter of New York draws a bill on his London customer for £1375. What should he be able to get for this bill with London exchange selling at $4.87? with London exchange at $4.84?

11. Suppose that a New York importer can get 50 gross of Sheffield razors delivered in New York for 44 pence each (the duty included), and that he can sell them for 95 cents each. What would be his profit on such a transaction if the rate of exchange on London were $4.84? if the rate were $4.87?

12. From the last two problems what principles can you deduce as to the effect which a high or low rate of exchange tends to have on exports? on imports?

13. "The greater part of our circulating medium consists, not of money, but of deposit currency." Explain what is meant by deposit currency.

14. Near what point would you expect the rate of exchange on Europe to be found in the fall of the year? Why?

15. "A matter very frequently overlooked by the public is that a large share of the bank deposits of a country like the United States grow out of loans and so do not add to the cash holdings of the banks." Explain how this is so.

16. When exchange on London is at $4.895 or thereabouts, it is said to be at the upper *gold point;* and when in the neighborhood of $4.835, it is said to be at the lower *gold point.* Why are these called gold points?

CHAPTER XII

SOME ELEMENTARY PRINCIPLES WITH RESPECT TO MONEY

Having briefly analyzed and described the system of Money and Credit Exchange, it is now in order to set forth some of the principles governing that system. It is much too early in our study to attempt anything resembling a thorough exposition of the theory of money. Nevertheless a few of the simpler principles which, though little more than truisms, are frequently overlooked by the public with the result that foolish errors gain acceptance and lead to hurtful legislation, should receive attention at the very outset.

The first point requiring emphasis has to do with the common fallacy which regards, or seems to regard, money as *the only kind of wealth.* In earlier centuries, whole communities have entertained such an idea, and even in our own day many people stand dangerously close to the same position. Anything that reduces the monetary stock of a community tends, in their opinion, to make that country poorer, no matter what the reducing force may be; and anything that increases the monetary stock, whether a balance of trade causing the import of money from other countries, or coinage by the government within the country, must have the effect of increasing wealth.

There is no doubt some little excuse for this attitude of mind in the predominant place which money holds in our every day thought and speech concerning wealth. We express wealth, of whatever kind, in terms of money, for example, when we say that "Smith has inherited a half million of dollars," though as a matter of fact he has inherited only land, factories, and stocks *valued* at a half million dollars. It is a

fact, too, that money will procure for us any other kind of wealth we may desire, and hence itself appears to us the most efficient and desirable form of wealth, the wealth *par excellence*. Nevertheless these considerations surely do not justify us in conceiving money to be the only form of wealth. Any kind of goods capable of yielding satisfactions and having exchange value—diamonds, bullion, land, or what not—are wealth just as truly as coined money. It is essential therefore to keep always in mind the following proposition:

1. *Money is simply one particular kind among many kinds of wealth.*

The second fact needing to be insisted on at this point is that money *is not the only kind of capital.* Considered as an instrument which we employ to facilitate the exchange of goods and to accumulate or transfer stores of value, money is of course capital, just as truly as buildings, engines, or machinery. But certain peculiarities of money have led careless persons into thinking and talking about it as if it were the only true capital. Thus all forms of capital, like all forms of wealth in general, are computed and expressed in terms of money, as when we say, "Mr. Craig has $200,000 of capital in the milling business." We seem to mean here that $200,000 in money constitutes the capital which Mr. Craig devotes to the production of flour; but what we should mean is that Craig owns and devotes to such production certain buildings, dams, races, and machinery *which have a value measured in money of $200,000.* He may not, and almost certainly does not, possess anything like that amount of money capital, as money.

Again, people are sometimes led to look upon money as the only form of capital, from the fact that money constitutes *the immediate form* in which most capital is accumulated. A person desiring to accumulate a fund of capital, to invest in the milling business, let us say, puts away his savings in the form of money or credit with his bank; and only after the sum of

money or credit has grown large does he part with it, obtaining in exchange the capital goods—lumber, engines, and machines—necessary to commence production. Still, the money stage of capital is obviously only temporary and transitional; it lasts only while enough is being stored up to bring in return an appreciable amount of other capital. It is moreover only a *representative* form of capital, the shadow or image, not the substance. At the same time that the capitalist is accumulating stores of money or bank credit, other men are manufacturing, practically, if not literally, to his order, lumber, engines, and machines; and these other things for which the capitalist, or someone who borrows from him, exchanges his store of money or bank credit, constitute the real, final, form of capital. The truth embodied in the following proposition should, therefore, be constantly borne in mind.

2. *Money is simply one among many kinds of capital (capital goods)*, i. e., *products which are wanted, not for their own sakes, but for the sake of other things which we can get through them; and relatively, money forms a rather small portion of the total capital of the community.*

Another mistaken notion with respect to money, which has caused a great deal of trouble in the past and is still very widely held, conceives that a country can never have enough money,—can to advantage increase its stock of this particular form of capital indefinitely. Every addition is eagerly welcomed; every withdrawal is looked on with anxiety. Increasing the quantity of money is offered as a panacea for almost every undesirable feature of business. All this is, of course, very hard for the student to comment on with patience. The quantity of money a country can advantageously supply itself with is wholly a matter of the need, the money work to be done, over against the quantity of its resources which it can afford to use to satisfy this particular need in view of the relation between its total needs and its total resources. Doubt-

less there is no way of ascertaining with precision just how much this means. But that it is a limited amount no one would deny. The actual work in which the money stock of a country is at any moment being employed is serving as reserves behind the credit of the country, passing from hand to hand in exchange for goods and in payment of obligations, and being held by people in reserve for current uses and in the process of accumulating capital. For the uses which involve passing from hand to hand, any particular pieces of money will be used over and over again so that the total needed for this purpose will be much smaller than the total amount of work to be done would seem to indicate. Further, a large share of the money work of this kind needing to be done is performed by credit substitutes which are extemporized for each transaction; and their volume has little reference to the quantity of money proper in the country. It is thus possible that the country should experience great changes in the money work to be done without any inconvenience resulting, even though the quantity of money had not shown a corresponding change.

But not only is the community's need for money a quite limited quantity, it is surely very foolish to want to have more than this. To insist on supplying ourselves with a larger amount is like filling up one's house with cook stoves or tubs or washing machines. Any time or energy which we expend in acquiring such objects beyond the needs of the kitchen and laundry lays upon us a burden in caring for them, and, worse, it reduces the time and energy which we have to use in supplying ourselves with fuel, food, clothing, and other needed articles. Putting this point into a formal proposition gives us a third principle.

3. *Money is simply one particular kind of useful instrument of which our stock should be large enough to do the money work needing to be done as well as we can afford*

to have it done, but of which we do not want an excess any more than we want an excess of chairs, clothes, stoves, engines, or any other useful article.

A fourth widely accepted fallacy connects itself with the supposed advantages of "putting money into circulation." Exactly what this phrase means in popular usage is often hard to determine. If it means causing money to flow, or pass from hand to hand, the phrase is merely an empty one without excuse for being. Money is always in circulation, passing from one person to another in purchase of goods, or held awaiting occasion for such use. It will circulate anyway; from its very nature it is bound to circulate. Or perhaps the phrase means to render money more active, cause it to spend a greater part of the time actually going through the air, effecting exchanges, instead of lying motionless in men's pockets. But to expect that any benefit will result from causing money to change hands a greater number of times in an hour or in a day is of course absurd. There is nothing beneficial in the exchange, *per se,* of money, because there is nothing beneficial in the exchange, *per se,* of goods. The exchange of goods should occur just often enough to enable us to dispose of those we have produced and to get possession of other goods which will be of most advantage to us as consumers. Any more exchanging would be, obviously, a waste of our time and effort. But, since money passes from person to person merely as a counter, a check against other goods, the number of times it can advantageously change hands is limited to the number of times those other goods can advantageously change hands. To pass it more frequently—if that were possible—would be merely a purposeless waste.

There is one other possible interpretation for the phrase. By "putting money into circulation" some people mean creating a demand, which would not otherwise exist, for goods and services, thus increasing the sales and the incomes of people

generally and making the whole community more prosperous. This belief is no more tenable than the ones just discussed; but since the particular fallacy involved is one in contravention of a principle of trade which we designate Say's Law, and which is treated in the next chapter, we must reserve the consideration of this fallacy for that connection. The chief point of our present discussion may be summarized as follows:

4. *Broadly speaking, it is of the very nature of money to circulate (in person or by proxy), that is, to pass from one person to another in purchase of goods or to be held awaiting the occasion for such use.*

Another truism which needs only to be understood to command immediate acceptance, and yet is constantly overlooked, has to do with the fact that the stock of money is not necessarily any measure of the existing wealth of a community. When we complain of the squandering of a great capital by a worthless heir, people at once say, "I don't see that any harm is done. The money spent by the foolish heir is still here. It has only been transferred to better hands."

Of course the money is still here. Money is a bit of social machinery of a highly durable character, which lasts almost indefinitely, needing only small additions to keep it intact, like such permanent forms of capital as roads, canals, etc. Of course, then, the money is still in existence just as if the spendthrift had not thrown it about him so freely for yachts, dances, feasts, and other frivolities. But, on the other hand, there is a total lack of something else which would have come into being if the son had followed in the footsteps of his father. The father would have looked upon his money as a temporary or transitional form of capital, and would have gone on to consummate the process of capital production by the purchase of productive goods — engines, cars, bridges, shops. These goods could have been produced by the same labor which was expended in ministering to the young man's

follies, and they would have continued for years to give off services, instead of totally disappearing, like the orchestra music or the champagne, over night. As a result of the young man's spending, therefore, society as a whole is vastly poorer than it might have been, even though the quantity of money is not altered in the least.

5. *Broadly speaking, it is of the very nature of money to remain money—not to be consumed in the sense of being finally absorbed into the life of any individual. Hence the fact that the stock of money is unchanged proves nothing as to how the amount of wealth or capital is affected by particular lines of conduct.*

A final fact deserving mention in this place relates to the effect of foreign trade upon the stock of money in any community. "Everything we buy abroad," so runs a popular fallacy, "takes just so much money out of the country," and the conclusion is drawn that the country thereby falls into great economic distress. Now a moment's reference to the facts set forth in our analysis of the Credit Exchange should make clear to anyone the error in this belief. We do not make our purchases abroad with money, but with instruments of credit. In like manner, we sell our goods abroad, not for money, but for instruments of credit. These two sets of instruments are cancelled against each other, only balances going in money; so that the amounts of money actually passing from one country to another are very insignificant. Further, of course, those balances will naturally be *in favor of* any particular country just as much as against it. That is, there will very likely be no net movement of money at all.

There is indeed one condition under which there will tend to be a *net outward* movement of money from a country practically all the time. If we are a gold producing country and spend much of our strength producing this metal, and little in producing other goods which we can export to pay for our

imports, then, of course, the balance of credit against us will be great, and we will have to export much money to cancel it. But even here *we are not exporting money in any true sense*. If we spend much time producing gold, we probably mine, refine, and subsequently coin into money a far greater amount than we can advantageously use as money. So far as our internal business is concerned, therefore, this excess is hardly to be called money; it is merely the metal, gold, a product of our labor, like wheat, or shoes, or pork, which we can and should ship abroad to those who desire it, in payment for the products which we desire of them.

But, while a country which is a large producer of gold, the money metal, may show a large net export of this kind of money, this will not be the case with other countries. Those which produce none at all will in the long run show a net import of such money; while those which produce just about enough to meet their own needs will have neither a net export nor a net import. *Between* countries, as *within* countries, money will act just as a medium of exchange must act. That is, it will come and go, go and come,—being wanted not to use for eating or wearing or warming houses or for any purpose that involves retaining possession of it or destroying it, but to use in helping us to exchange our products for the products of other countries.

6. *It is of the very nature of money to go back and forth between communities; trade with the outside world does not of itself tend to take away our money.*

Illustrative Problems

1. "Foreign trade can add to the national wealth only when it brings in a money balance."

(a) What is the principal thing to be gained by maintaining trade relations with the outside world?

(b) When would it be of advantage to have our foreign trade bring in a money balance?

2. "A nation is so much poorer by every dollar it sends out, just as an individual is so much poorer by every dollar he spends." Criticise both clauses.

3. "Everything we buy abroad takes just so much money out of the country."

Show that this can not be true whether it is meant that such buying abroad takes the money out *immediately or* only *ultimately*.

4. Suppose that official reports from all the banks of a certain city show that, on an average, 93 per cent of the deposits received during a certain day consisted of checks, only 7 per cent being in the form of money. What important fact with respect to the conduct of business in that city would be thereby disclosed?

5. "It is sometimes asked whether the raising of a government loan to cover ordinary expenditures really causes capital to be lost, since the coins received by the government remain in existence,—even remain in the country. *This objection has no weight whatever.*"—Pierson's Principles of Economics. Show that the statement in italics is correct.

6. "We pay 110 million dollars per annum for the carrying of products between this and foreign countries. Think of it. One hundred and ten million dollars in gold coin has gone out of the commerce of this country into the commerce of other countries. Can New York stand this?"—James G. Blaine in 1881.

(a) Is it likely that we permanently lost 110 million dollars in gold from our circulation because we hired foreigners to carry our goods?

(b) Is it likely that we even temporarily parted with that much gold on that account?

(c) Is it likely that as a nation we should have been richer if we had done this carrying of products for ourselves?

7. "I don't see that society as a whole loses anything by the giving of a fireworks exhibition costing $1,000. Of course the people who pay for the fireworks are just so much out. But then the $1,000 goes to the other people who furnish the fireworks so that society as a whole comes out even." Criticise.

8. Bills drawn against these heavy shipments (of cotton) flooded the foreign exchange market this week (Nov. 19, 1903), depressing it to the lowest level since Nov., 1900."

According to popular ideas, what result ought to have followed the heavy shipments of cotton referred to?

9. "My numerous armies promote the circulation of money, and disburse impartially among the provinces the taxes paid by the people of the state."—Frederick the Great justifying his wars in a letter to D'Alembert. (Quoted from Bullock.)

Was there anything in the facts stated to offset the sacrifices undergone by the people in paying the taxes?

10. "The summer boarders are a great blessing to our little village; because they put into circulation a lot of money, which means at least temporary prosperity."

What must we understand this phrase, "put into circulation money" to mean, if we accept the above as anything like an adequate explanation of the prosperity brought by the summer boarders?

11. "The individual can get rich only by selling more than he buys and saving the surplus in the form of money or bank-credit. So a country can increase its wealth only by exporting more than it imports, and taking the difference in money."

Discuss both parts.

12. "I am not convinced of the soundness of the orthodox doctrine that a country can have all the money it wants and needs, just as it can have all the engines, machinery, etc., which it wants. Money is very different from other things. It would be easy to give a man all the food and clothes he wants; but, however much money you offered him, he would take it all gladly."

Criticise.

13. From a Salt Lake supporter of the "Seeing America" movement: "We recognize that Americans are annually spending $200,000,000 in foreign travel. That practically every dollar of this vast sum is lost to the home circulation can not be disputed."

Criticise the last sentence.

CHAPTER XIII

CERTAIN FUNDAMENTAL PRINCIPLES OF TRADE

The preceding chapter sought to emphasize certain elementary principles governing the mechanism of exchange, principles which, though little more than truisms, are often overlooked. For exchange itself—the process of trade between individuals and communities—there are similar elementary principles which are so commonly neglected or misunderstood as to call for immediate comment. One of these, perhaps the most fundamental of all, has already been given on page 25, in the proposition that the chief function of exchange is to make co-operation and specialization possible. We must now add three others, scarcely less important, known as Say's Law, the Principle of Reciprocity, and The Law of Comparative Costs.

Section A. **Say's Law**

The first of these principles has to do with the conditions which determine the *total demand for goods.* Demand, as understood by the economist, means the quantity of any goods which buyers actually stand ready to take, as conditions are, including the existing price. Demand in this sense obviously implies the existence of *desire* on the part of buyers, coupled with *power to buy,*—control of some adequate equivalent to be exchanged for the thing desired. The definition will be more fully explained in the next chapter, but for the present this much will suffice.

One of the most popular notions, and an entirely erroneous one, as to how the general demand is determined, will perhaps serve best as an introduction to the really sound doctrine. The error in question takes its origin in the natural anxiety

of each individual producer to increase as much as possible the demand for his own particular product. In order to promote this result he expends much effort both in trying to make his product exceptionally good, and in convincing buyers of its goodness; and, so far, his methods are quite legitimate. But he is seldom content with this. He wishes to enlist the conscious support of his neighbors and fellow citizens acting in their personal capacity or through public legislation. For example, he tries to get the rich into the way of *spending their money liberally,* or he urges the government to *raise the money by taxation and undertake expensive improvements.* But, in order to enlist the support of producers generally in his scheme, he must seem to show that the scheme would be of advantage to those other producers as well as to himself. Hence, he argues that the demand for his own goods, which he is seeking thus to increase, will indirectly but none the less surely increase the *demand for goods in general.* A similar argument is often advanced in relation to happenings of a destructive nature. A government may be wasting the substance of an industrious people carrying on a foolish and costly war, and when economists complain, someone promptly answers that it is a good thing because it creates a demand for goods. A tornado which blows off a farm house roof is observed by many—not including the farmer—to have the same consoling feature.

What people mean is that the tornado, to use a single example, *sets up a chain of purchases which would not otherwise be made.* The householder whose roof is blown off at once proceeds to buy shingles and hire carpenters; the carpenters and the lumber dealer, finding their incomes increased, buy more groceries and clothes; the grocer and clothier, taking their unusually large receipts, improve their stocks by purchase from the wholesaler, or spend more freely for pleasure rides and concerts. Thus the purchases made by the roofless householder extend themselves indefinitely down the line,

business quickens everywhere, the prosperity of the whole community is heightened.

This reasoning sounds plausible at first, but is in fact fallacious. To detect the fallacy we must go back to our householder and watch him during the hour after his roof has disappeared and before he calls in the lumber dealer and the carpenters. Possibly the man has cash in his pocket sufficient to pay for the repairs. More probably he has not, since all his savings but a dollar or two are usually kept in the bank. He either takes the money from his pocket or draws a sum from the bank and spends what he must for lumber and carpenters. Thus his money creates demand, and starts a chain of purchases.

But, now, if we consider this fund of money more closely, we see that *it would have created the same quantity of demand for goods and services anyhow.* If our house owner has the cash in his purse, he must be keeping it there temporarily, intending to spend it for commodities or services to be devoted, perhaps, to putting a new cellar under his house. Or suppose he is not intending to spend the money at present, and so is keeping it in a bank; it is not locked up there, we may be sure, but is being loaned out more or less constantly to borrowers who are using it to purchase commodities or services. For the sake of simplicity, let us say that it is loaned to some one who plans to use it putting a cellar under his house. A necessary result, then, of spending this money to repair the broken roof is to *prevent it from setting up another chain of purchases,* starting with those needed to excavate the *cellar.* This other chain would have begun with the hiring of cellar diggers and the buying of cement; the diggers and cement dealers would then have spent more for furniture and dental service; and the furniture merchants and dentists in their turn would have spent more for automobiles and real estate. In short, the purchases made by the householder in digging a new cellar would have extended their influence endlessly, stimu-

lating business and apparently bringing prosperity into the world, *just the same as purchases made to repair a roof whisked off by a tornado.* Hence the tornado does not increase demand in the least, it merely *substitutes one chain of purchases for another.**

What, now, is the point to be made from the story of our house owner? Immediately, it is this. The contribution made by any one person to the total demand for goods is, in the long run, bound to be just equal to his income, no more and no less. He can not demand more goods than that income will buy; he or some one who borrows his money is certain to demand as large a quantity as that income will buy.

But this only starts us on our way. What determines the quantity of his money income? Broadly speaking, this is determined by the amount of goods or services which, under existing legal conditions, is credited to him as his product.** It follows that the contribution to total demand made by anyone is necessarily equal to the *quantity of his product*: it *can not* be greater; it *must* be as great. Finally, since the total demand of a community necessarily consists of the sum of the demands made by the individuals who constitute the community, the *total demand* of that community must equal its *total*

* Incidentally, too, we should note that, from the standpoint of the original householder, the chain of purchases which would have been started by digging a cellar is much more desirable than the one actually started by repairing the roof. The second process leaves the man with a house no better than before—a house having a roof but no cellar. The first would have left him a house already sufficiently well roofed, and improved by the addition of a cellar. Hence, while business in general gains nothing from the tornado, the householder suffers a positive loss.

** This is not to be taken as meaning that the individual is morally entitled to the particular income which he is receiving on the ground that he produces it. The *product is here* whether or not the right man is credited with it; and the value of that product determines the volume of demand resulting, whoever ought to control that demand.

product: it can not be greater; it is bound to be as great. But these propositions are so important that they must be more specifically defended.

1. *Demand can not be greater than product,*—can not, at bottom, include anything outside of product. Imagine a shoemaker who makes nothing but shoes desiring to obtain a quantity of wheat from a wheat farmer who raises no other grain. Obviously, the only way he can hope to obtain wheat is to offer shoes—either directly on the barter plan, or indirectly through a money medium—in exchange. But these shoes which he offers he must first have produced—they are a product; hence the shoemaker's demand for wheat cannot include anything outside of his product, (shoes). Reversing the hypothesis, if the wheat grower desires a new pair of shoes, his demand for shoes cannot include anything outside of his own product, (wheat); he simply has nothing else to *demand with*. Now, if this is true of two people in their relation to each other, it must be equally true of one person in his relation to society as a whole: the demand made by shoemakers for market goods of all kinds can include nothing but shoes produced by them and offered on the market; the demand made by wheat growers for market goods of all kinds can include nothing but wheat produced by them and offered on the market—in each case nothing else will serve as a demand for goods in general except something which the individual has himself produced. Finally, this proposition, being true of every individual, must be true of all individuals taken together. The demand of all the people in the community, *the total demand,* can be no greater than the product of all the people of the community, *the total product.* Finally, what is true of each nation in its relations with the rest of society, is equally true of all society, of the whole world, in its complex, intricate relations with itself. *The demand made by all society for market goods of all kinds can include nothing but goods which the same society has produced and offered on the market.*

2. Demand must *include all of the goods produced for the market*—assuming that producers have directed their production in true accord with one another's wants.

Presumably all goods produced for the market will be offered in exchange, that being the purpose of their production, and, when offered in exchange, all these goods constitute a demand for other goods. Thus the shoemaker produces, say, two pairs of shoes each year for his own use, and a hundred pairs for the market; and every one of these marketed pairs constitutes a demand for wheat, cloth, wood, and so on. In other words, everything which the shoemaker offers in exchange, demands something else to be given in exchange. That the same proposition will hold true of all other individuals, of nations, and of society as a whole will perhaps be accepted without further argument. Everything which society (any part of it) produces for the market will, when offered in exchange, constitute a demand for other goods which society itself (some part of it) has produced.

The unfailing applicability of this principle can best be shown by reference to a situation where it is generally supposed to fail. "Every true friend of labor," so runs an old argument, "must condemn without reserve all prison systems which devote convict labor to the production of goods for the market. Every such system must, in the nature of the case, increase the supply of commodities without increasing the demand, and so must diminish the employment available for honest laborers who keep out of prison." As a matter of fact, the goods produced by convicts in prison add just as much to the demand as they do to the supply; the goods are exchanged by the prison authorities, either on a barter plan or by use of a money medium, for other goods which the prisoners need, and so, proportionally, add to the total demand for goods. To be sure, the prisoners must necessarily be supported anyway, and the demand for the particular products they need will exist whether they offer anything of their own producing in ex-

change or not. But suppose for a moment that they do offer nothing. Then the goods or funds offered in exchange—in demand for—the goods they need, will have to be obtained by taxing the public. This, of course, while leaving the prison demand for those products needed by it just the same as before, *will diminish the taxpayers' demand for some of the same or various other products.* Undoubtedly, then, the total demand for all products would not be so great as if the prisoners worked and offered something in exchange. All goods produced for the market, under whatever conditions, constitutes a demand for other goods. Or, to return to our original proposition: *demand must include all of the goods produced for the market.*

This statement must not be accepted, however, without the proviso which appears in the second clause of our proposition. "Assuming that producers have directed their production in true accord with one another's wants." Producers do not always direct their production in true accord with one another's wants. Under primitive conditions, it was possible for any producer to estimate with a fair degree of accuracy the kind of product and the amount of it which would be needed. If a shoemaker had a hundred neighbors, none of whom made shoes, he could feel tolerably certain that at intervals not difficult to calculate, he would be called upon to provide coverings for one hundred pairs of feet. Under modern conditions, the problem is not so simple. In many of our old and well established industries, the wants of the population can still be fairly well forecast. But the excessive increase in the volume of capital brings about a very low rate of profit in these industries. On the other hand, there are always springing up new enterprises; and the excess capital seeks investment in these, where the profit may be high but where unfortunately the amount of output wanted by the public cannot be calculated at all closely. The result is that often something is produced—let us say, theatres or summer furs or

railroad facilities—which people do not really want, or at any rate not in the volume offered.

Now, as regards these excess products which nobody wants, our original proposition still holds true: every part of the product, and the whole of it, when offered on the market, constitutes a demand for other goods. But just here arises a discrepancy—some of *the other goods* which have been produced and which should presumably be offered in demand for these summer furs and trips on the railroad, are not forthcoming. Some of the wheat, some of the shoes, some of the machinery is withheld from the market and not offered in exchange for the summer furs—and why? Because the producers of wheat, shoes, and machinery had expected to demand with these goods, not summer furs, but some different product, let us say automobiles; some different product which the makers of summer furs would have produced if they had not gone into the fur business, but which are not now produced in large enough quantity or at low enough a price. Due to the misdirection of production by makers of furs, therefore, certain other goods are temporarily kept in the store house; or, if sold, they are sold only for money or credit, and these media are not used, for the time being, to buy other goods—the exchange operation is left half completed.* The part of these goods which is not offered thus constitutes for the time being an excess of product over demand. Hence, to our original proposition that "demand must include all of the goods produced for the market," it is necessary to add the proviso that "producers have directed production in true accord with one another's wants."

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*This last must not be understood to imply that exchange is never complete unless the money received for goods sold is in turn used to buy other goods. Occasionally, the money which a seller receives for his goods is the ultimate thing he wants. For example, he may wish to get gold to use in making jewelry and may choose to do this by melting coins; or he may have a fad for collecting gold coin just as another man might collect old pictures.

We have seen then that (1) Demand cannot include anything outside of product, and (2) demand must—with small exceptions—include all of the goods produced for the market. But, if demand cannot include anything outside of products and must include all of these, then demand and product must coincide. This is the point which we have been seeking to demonstrate. It is the essence of Say's Law, and for sake of emphasis can now be stated as a formal principle.

Principle. Say's Law. The Ultimate Identity of Demand and Product

In the last analysis, the demand for goods produced for the market consists of goods produced for the market, i. e., the same goods are at once the demand for goods and the supply of goods; so that, if we can assume that producers have directed production in true accord with one another's wants, total demand must in the long run coincide with the total product or output of goods produced for the market.

Illustrative Problems

1. "George Rankin is of course a big fool to spend $400 making a mill dam in a creek which is dried up every summer and never has enough water to run an ice cream freezer; but he is doing one good thing,—he is making a whole lot more demand for labor and so a lot more employment for laborers."

Explain fallacy.

2. "There is just so much work to be done. The entrance of women and children into the field of labor must drive out an equal amount of adult male labor."

Criticise. (There are no doubt objections of real weight to the extension of child and female labor; but this is not one of them.)

3. "The real cause of the present standstill in trade is the inequality of incomes. There can be no effective demand, be-

cause those who have the money to buy have no unsatisfied wants, while those who have the wants have no power to buy."

Criticise.

4. In a certain part of a recent novel, Mr. Blossom, a young painter and decorator, is trying to induce Miss Cynthia to give him a job redecorating her house, which is somewhat behind the times in this respect. The latter part of the conversation on the matter is as follows:

" 'Live and let live' is a good enough motto for me."

" 'Live and let live,' " repeated Miss Cynthia, thoughtfully. "What do you think that means?"

"Why, it's plain enough," said Mr. Blossom, strongly. "You're living all right, ain't you? Got enough of everything and something to spare * * * * ; but you've got to let other folks live. * * * If there's anything you want done that you can't do for yourself, hire somebody that can do it * * * so they can live, too. If everybody did that right along, I guess there wouldn't be so much talk about labor unions and strikes and all that sort of thing."

(a) Would Miss Cynthia's deciding to spend and actually spending $600 to redecorate her house increase the employment of laborers generally?

(b) Why can we be certain that everybody is now doing the thing which Mr. Blossom thinks they ought to be doing?

5. Street comment on a cold snap which bursts numerous water-pipes: "Hard on householders, sure enough; but no great loss without some small gain. It's a bonanza for Ann Arbor plumbers." Is that sound?

6. Mr. A, having earned and saved $10,000, buries it in the ground. Another, having earned and saved $10,000, spends it on a great banquet. Which makes the greater demand for products?

Explain.

7. Would we naturally expect events like the San Francisco earthquake and fire to increase the demand for labor in general?

Explain.

8. "Economically it is for the interest of every class of producers to see the efficiency of other classes of producers increase."

Why?

9. "The extraordinary advance in industrial technique characteristic of the last half century has so increased our productive capacity that, when things are running smoothly, output is bound, sooner or later, to exceed demand, which condition of things invariably leads to a commercial crisis followed by a general collapse of industry."

Criticise.

10. The Chicago Record-Herald for April 18, 1908, contained the report of an interview with the head of one of America's great universities, wherein various opinions and statements were attributed to King Haakon of Norway. Among these was the following: "I could black my own boots if I wished to; I have done it and therefore know how; but if I did, what would become of the people who make a living blacking boots?"

Criticise on the basis of Say's law.

Section B. The Principle of Reciprocity

If a person were told that he could derive no benefit from trade with his fellows unless he bought as well as sold, he would perhaps be very impatient at being taken for a person so stupid as to need such instruction. As between individuals, he would admit, trade is necessarily reciprocal; it is simply impossible for the shoemaker to sell his shoes to the wheat farmer without at the same time buying the farmer's wheat, because the farmer can "demand" or buy shoes only with the wheat which constitutes his own product.

But, when questions of trade between communities arise this same man will probably show himself wholly oblivious of the principle which seems so evident in domestic trade. He will consider it possible, as well as highly desirable, to increase the volume of goods sold to other countries while leaving stationary the quantity bought, or will bemoan the importation

of goods from outside as decreasing the demand for home goods. In point of fact, it is neither desirable nor possible for any country to sell more than it buys; nor, on the other hand, is there, in the long run, any danger of reducing the demand for, and production of, home goods by the purchase of goods from outside. These facts, so often overlooked, so frequently the subject of mistaken legislation, are the essence of the Principle of Reciprocity, which we must now explain and establish.*

Broadly speaking, then, the goods exports (actual commodities, not including money, the medium of exchange) and the goods imports of that country, must be equal. It will be easiest to establish this fact by means of two different propositions, (1) that the total exports, *including money,* and the total imports, *including money,* must be equal, and (2) that the total exports, *excluding* money except as this is conceived as a mere metal product, and the total goods imports, *excluding* money except as this is conceived as a mere metal product, must in the long run be equal.

1. Assuming that no one is cheated, the total exports of a country, including money, must equal the total imports of that country, including money.

To begin, we shall take for illustration the commerce between the United States and England. Let us say for simplicity that the exports of the United States to England consist of meat, cotton, and wheat, and that the imports from England consist of textiles and machinery. These are the

* The Principle of Reciprocity here laid down should not be confused with the *policy* of reciprocity much advocated and occasionally practiced in this country. The latter, as indicated, is a *policy* in the conduct of a nation's commercial relations, not a natural law governing phenomena. Further, as a policy reciprocity has its chief theoretic basis in alleged natural laws which are quite inconsistent with the Principle of Reciprocity. Most advocates of the policy of reciprocity are more or less pronounced disbelievers in the Principle of Reciprocity.

products which would ordinarily be called exports and imports, the products which are *reported by the customs authorities*. But do these exports and imports exactly balance? Far from it. An examination of the custom house records for any stated period would show a large discrepancy between them, and one which, in our case, is almost certainly in favor of the exports. Of commodities that pass through the custom house, America exports to England more than she imports from England. But the matter does not end here. Customs reports do not, and can not, show *all* exports and imports. The true imports of the United States from England include *everything* bought by its people from the people of England. But *some* things bought from England can not, or at least do not, come to the knowledge of government officials. Of these the most important are (1) goods and services bought from the foreigner in his own country, by our people traveling there, (2) the services of foreign capital invested in American industries, and (3) services bought from the foreigner, for example, ocean transportation, and *delivered in our own country,* but not appearing in import lists because *as services* they do not go through the custom house. In short, there are *invisible,* as well as visible, imports; and it is the sum of both of these which must be equal to the total of exports. What has been said of imports applies of course to exports. Of these, some are visible, some invisible; and it is their sum which must equal the total imports.

Included among our invisible *exports* would perhaps be a quantity of money metal. The United States, as one of the chief gold producers, accumulates more of this metal than she can profitably use as a domestic circulating medium, and accordingly she ships it abroad as one of her products in payment for foreign products, just as she ships her meat, hides, and steel. This gold is, however, usually exported in the shape of money, is not counted by customs officials, and hence forms one of our invisible exports.

But, now, even after the invisible imports and exports are added to the visible ones, America's imports from England by no means equal her exports to England. *If therefore the United States were trading with no other country than England,* the latter country would be compelled, in order to equalize the exports and imports, to send us a quantity of value embodied in her circulating medium, the money which she has coined for, and needs for, her domestic use. This result is plainly inevitable. We surely would not give without receiving. We should expect to receive exactly as much as we gave, and, if we failed to obtain the equivalent of our goods in any other form, we would surely get it in the form of money. By this device, the exports from the United States to England and the imports of the United States from England would be made equal.

Thus far we have shown that, on the hypothesis of international trade with a single country, England, our exports and imports would be equal. In point of fact, no such equality can actually be discovered in the two sides of our trade with England or with any other single country. But neither is our international trade confined to England or any other single country. Hence it is not necessary under the principle that our trade relations with any single country should balance. The principle states that America's exports and imports—the *total exports and imports between America and all other countries,* are equal. If our trading neighbors are not one but many, we need only show a complete reciprocity between ourselves and the many taken together. This can best be done by merely going forward from the point reached under the simpler hypothesis above.

The two sides of our trade with a single country do not balance. For example, we cannot buy from England enough to offset our sales to her, because we have relatively small need for her products. But the adjustment from our standpoint is easily made. We need to buy extensively from South

America, the East Indies, and various other countries, while having little to sell them, and by balancing our excess of imports from these countries against our excess of exports to England, our total imports become equal to our total exports.

Further, under these new conditions another important fact appears. The money which we would have had to take from England, as our only trading neighbor, in order to balance the imports and exports, is no longer under any necessity of moving. For it so happens that, while we need to buy extensively from South America, the East Indies, etc., at a time when we can sell them but little, England, on the contrary, buys from those countries much less than she sells to them. The countries named thus become indebted to England in exactly the same way that she becomes indebted to us. Hence England does not send us money out of her own circulation, but, using the well developed mechanism of international trade, simply transfers to us her credits on South America, etc.—that is, allows us to collect her debts in South America and other countries. And this arrangement is of course very fortunate for us, too, because we collect these debts in the form of excess imports from South America, etc., and are thus spared the necessity of sending our own money to those countries to make up the deficit in our goods exports to them. In short, we will buy international credits from all debtor countries, and sell credits to all creditor countries in this way just as long as we can; and, if our credits and debits from all other countries, for actual commodities, come to a balance, there will probably be no movement of money.

Nevertheless, it may so happen, for a brief period at least, that our total goods exports to all countries and our total goods imports from all countries are not equal. In this event, the deficit, on whichever side it rests, will be made up by an export of value in the shape of money, a part of the domestic circulating medium. That this must be so is surely self-evident. If, taking them all together, the other countries of the

world are indebted to us and cannot pay in goods, we will insist before long on having their money. If we are indebted to the other countries, taking them altogether, and cannot pay in goods, they will likewise demand our money. Thus by an export of money if we have a goods indebtedness to others, and by an import of money if they have a goods indebtedness to us, our total exports and total imports will be made equal.

2. The total goods exports of a country (excluding money) and the total goods imports of that country, (excluding money) must in the long run be equal.

We have shown in the preceding pages that the total exports and imports of a country will be equal if we allow them to be balanced by a movement of money. We now assert a proposition more advanced and radical: in the long run, the equality of exports and imports which is obviously necessary will not be—cannot be—secured by movements of the existing money stock. If we increase our import of goods, we must, broadly speaking, increase our export of *goods,* not our export of money; and *vice versa.*

It seems *almost* justifiable to say that this statement is self-evident. A community could not long pay for an excess of imports by drawing on its stock of money; since that stock would sooner or later become completely exhausted and so trade would have to cease. But this exhaustion of the money stock is just what amateur economists so generally fear, and its appearance, together with the consequent cessation of trade, would decisively disprove the Reciprocity doctrine. It therefore is necessary to show that there is no danger of exhausting the money stock through trade or even of drawing it down to unduly small proportions.

In the first place, under normal conditions, international trade is *mediated through credit* rather than through money, and, under the natural working of the principles of credit exchange, goods exports and goods imports tend to be made equal *automatically.* The first part of this statement hardly

needs comment. We have noted earlier that the exporter takes his pay in the shape of a credit on other countries and that these credits, getting into the hands of exchange dealers, are as far as possible cancelled and only balances paid in money. Such has always been the practice and, for manifest reasons of convenience, always will be. The second part of the statement, if less familiar, is no less true. Under the natural working of credit exchange, exports and imports tend to become equal *automatically,* the balances which have to be paid in money tend to disappear or to reach a negligible minimum. How this comes about is easily shown.

Foreign credit,—the medium of exchange in foreign trade —is regularly bought and sold, and so has a price known as the rate of exchange. This price will be high in any country if importing into that country is excessive and exporting deficient, because the demand for such exchange will be great and the supply small; while, under the opposite conditions, the price of exchange will be low. But a high price for exchange will make exporting more, and importing less, profitable than usual, while a low price of exchange will make exporting less, and importing more, profitable than usual. That is, a high rate of exchange will stimulate exports and discourage imports, while a low rate will have an opposite effect. But it was excess of imports which caused a high exchange rate; hence excess of imports will tend automatically to increase exports and diminish imports. So, it was excess of exports which made the exchange rate low; hence excess of exports will tend automatically to increase imports and diminish exports. And obviously these tendencies will persist in greater or less power until exports and imports become equal. *So long as either buying from outsiders or selling to outsiders is in excess of the other, a rate of exchange is bound to obtain which discourages the side of trade which is in excess and stimulates its opposite, with the result that the excess must progressively diminish and finally disappear.*

International trade, we thus see, is normally carried on without the use of money and tends automatically to balance itself without the intervention of money. To lay finally the ghost that foreign trade will drain away our stock of money —to make clear that the necessary equality of exports and imports cannot, under normal conditions, be secured by exporting our stock of money but must be brought about through increasing the export of goods—we need to show that *any drain from the normal money stock of a country tends to be checked automatically*. The demonstration is not difficult.

First, practically all the money exported from any country in the course of trade is taken from the bank reserves of the chief commercial and banking center,—in our case New York, in that of England, London, and so on. The explanation of this strict localization of a money drain has already been anticipated. Trade with outside people is, as we remember, almost entirely carried on with credit; and the international claims thus created get into the hands of a few exchange houses in the different countries, are as far as possible cancelled, and the balances either way paid in money. But inevitably this dealing in, and settling of, international credits is mostly confined to the chief commercial center where the large volume of transactions develops the most efficient processes of settlement. The exchange houses of this commercial center of course keep accounts with the banks in the same city, or are themselves engaged in a regular banking business. In either case, the money they send out will be taken from the banking reserves of the commercial center. More especially, it will be taken from that portion of the reserve which alone is so free as to be fully available, the portion known as the *surplus reserve,* which is in excess of the amount banks are by law *required* to keep.

Now, with regard to this banking reserve from which export money must inevitably be drawn, two or three significant facts should be noted. First, it is, in a very important sense,

the reserve, not only of the city where it is located, but also of the country at large; for the banks of other cities keep from one-half to three-fifths of their reserve in the central city banks. Secondly, as a result of the large number and scale of transactions, the enormous amount of speculation, and the stupendous projects which have to be financed—provided with ready money—at this center, the banking surplus or free reserve of the central city is ordinarily kept down to a very low point. If business and speculation are very active, the reserve is even likely to disappear altogether and be turned into a deficit. On account of these peculiarities of the central city reserve, changes in its amount are of great significance, and are carefully, even anxiously, watched by the business community both of the central city and of the country at large. For one thing—and the point of most importance here—these changes quickly lead to opposite changes in the rate of discount, the rate of interest paid on bank loans; a fall of a few millions in the bank reserve sometimes causes the rate on call loans to jump from two or three per cent to five or ten or fifteen.

The banking reserve in question thus occupies a very significant place in a country's life, and any considerable change in its volume is likely to bring marked results. But, as we saw above, money for export is inevitably drawn from this banking reserve and may of course very quickly make an enormous change in its volume. It should be easy to see then how a drain of money from the country tends to be checked. The result is accomplished through one or more of several series of reactions started by the outflow of money itself.

The first series of reactions, and the one which works most promptly, is as follows: the outflow of money lowers the central city reserve to an abnormal point; this raises the rate of discount; the central city becomes a more than usually profitable place for the investment of capital; this leads foreign creditors to decide to leave their money capital here for investment

rather than having it sent to them; and so the outward movement of money tends to be checked.

If these first reactions fail, a second series will before long inevitably come into play. First, the outflow lowers the central reserve, thus lowering the rate of discount. Second, a fall takes place in the price of securities and the great staples such as wheat and cotton. This grows out of the fact that there is a vast amount of speculative trading in these securities and staples and the further fact that such trading is largely based on borrowed capital. As a result, a high rate of discount hinders people from buying as freely as otherwise and even drives them to sell their present holdings,—either of which courses tends to lower prices. Third, the fall in prices stimulates foreign buying of these securities and staples. And, finally, such buying tends to turn the balance of international credit in our favor and so to stop the outflow of money or even to cause an inflow.

In extreme cases, a still more powerful series of reactions may be set in operation. The outflow of money may go so far as to cause a serious deficiency of that instrument for the purposes of general trade; this would tend to bring about a general fall of prices; foreign buying of all sorts of export goods would be powerfully stimulated; and the favorable balance of credit quickly resulting would surely stop any money outflow.

Summarizing the discussion, it is plain that any considerable drain of the ordinary money stock of a country tends automatically to check itself; that, consequently, the necessary equality of exports and imports can not in the long run be secured by movements of money, (save in so far as these are movements of new stocks of money metal); and, therefore, goods exports and goods imports must, broadly speaking, be equal.

Having established both our first and our second propositions, let us now as usual condense the results of the whole discussion in a formal principle.

Principle. The Principle of Reciprocity

Exchange between communities, as between individuals, is necessarily reciprocal; and, speaking broadly, the total of goods (not including money) sold by any community to all other communities must in the long run equal the total of goods (not including money) bought by that community from all others, save that there will usually tend to be a slight excess of goods exports from communities not producing standard money metal and a more or less considerable excess of goods imports into a country producing standard money metal—it being assumed that the distribution of population among different communities remains substantially unchanged.

ILLUSTRATIVE PROBLEMS

1. "Another important reason for keeping our fleets as far as possible in our own ports is that under this policy the money they spend for ordinary supplies goes to our own people."

Explain what the writer probably meant and criticise it.

2. "To the same extent that the home market is wrested from foreigners and given to protected home producers, the foreign market is wrested from unprotected home producers." Seager, p. 381.

Explain and defend the statement.

3. "When I came to Marblehead they had their houses built by country workmen, and their clothes made out of town, and supplied themselves with beef and pork from Boston, *which drained the town of its money.*"—Barnard's Autobiography.

Criticise the part in italics.

4. From a suppositious editorial of a Benton Harbor newspaper: "The annual influx of students and other outsiders into the fruit belt to engage in fruit picking and packing is an abuse which should be stopped at once. These people consume very little, saving their money to take back to Ann

Arbor, Chicago, and the other places from which they came. Thus, while making large sums off us, they give little or nothing to the support of our industries."

Criticise.

5. "One reason for our almost constant excess of exports is that we are enterprising and so always opening up new markets."

Objector. "Opening up new markets might increase our exports but could not increase our *excess* of exports unless somebody cheated us,—seeing that our country is one of the chief producers of gold."

(a) Argue for the correctness of the second quotation.

(b) Why was the phrase from the dash, added?

6. Remarks of a leading Congressman when it was announced that the Canal Commission would purchase supplies wherever they could be secured most cheaply. "The President should be able to see the desirability of purchasing the supplies in this country alone, because thus employment would be given to *American* capital and labor instead of foreign."

Explain fallacy.

7. "The chief reason for our excess of exports is to be found in the fact that the things which we sell are more necessary to our neighbors than the things which they sell are to us."

Criticise.

8. "The true way to quicken foreign demand (for British goods) was to open the ports to that foreign supply with which they paid us for what they bought from us."—Morley's Gladstone, vol. 1, p. 267.

Show that the above is sound doctrine.

9. "If we buy rails from England, we get the rails of course, but they get our money; while, if we buy the rails at home, we have the rails and the money, too."

(a) Is there any reason to expect that our buying rails in England would carry off our regular stock of money? Explain.

(b) Substitute "cotton" for "money" throughout the above quotation and show the fallaciousness of the doctrine.

10. "The trade of the United States shows an excess of exports, because it is a large resourceful country which has to supply other countries with raw materials."

Criticise.

11. "I have always believed that free trade would secure the greatest general prosperity, provided that all countries would practice it. But, if neighboring countries are bound to maintain protection, it is only fair to ourselves to do the same."

(a) What is the real economic evil of having our neighbors shut out our goods?

(b) Would we better matters by shutting out theirs?

12. A Detroit physician who has a son in the University at Ann Arbor requires the latter to buy his clothes and other supplies just as far as possible in Detroit, on the ground that, since his income is earned in that city, it ought to be spent there.

(a) Has the father placed himself under obligations to the people of Detroit by earning an income from them?

(b) Supposing the distribution of population unchanged, would Detroit as a whole get any more employment on the one plan than on the other?

13. A Western newspaper, anxious to hinder the people of the community from buying outside, represents a silver dollar as appealing to a home dentist about to send it to Montgomery Ward & Co. of Chicago, in the following strain:

"Now, look here, Doc. If you'll only let me stay in this town I'll circulate around and do you lots of good. You buy a big beef steak with me, and the butcher will buy groceries, and the grocer will buy dry goods, and the dry goods merchant will pay his doctor bill with me, and the doctor will spend me with a farmer for oats to feed his buggy horse, and the farmer will buy fresh beef from the butcher, and the butcher will come around to you and get his tooth mended. In the long run, you see, I will be more useful to you here at home than if you send me away forever."

(a) Clear up once more the fundamental errors in all talk of this kind.

(b) Show that, even if we admit the principle implied in the quotation (that only the money spent at home can complete the circuit so as to get back to the original spender), *only a very small portion* of the dollar could get back to the dentist.

14. English people own much capital which is earning interest or dividends in other countries. What effect does this fact tend to have on England's exports or imports?

15. "If it were possible for one county to provide by law or otherwise that no dollar which came into it could be sent out, within two years the county would be so much richer than its neighbors that they would begin to wonder, etc."—Western newspaper.

(a) What do you suppose are his reasons for expecting such a policy to produce the great prosperity predicted?

(b) Show that his great expectations are unreasonable.

(c) Show that the policy in question would be likely to make the county poorer rather than richer.

16. "You admit that it would increase the productive power of a given county to have a man with one hundred thousand dollars move in, bringing his money with him. How, then, can you deny that the county would grow richer if it could and should for three or four years stop all money which came in from going out?"

Show that we are guilty of no inconsistency in admitting the one contention and denying the other.

17. The following was taken from a country newspaper in 1908: "It appears to this paper that all this severe criticism * * * of Mrs. Howard Gould's requiring $70,000 a year to pay her expenses is quite uncalled for. What's the difference, anyway? If she and her folks have the 'dough,' let them spend it as fast as they like. That's better than hoarding it. When the money is spent it goes to some one and gets into circulation. We people whom circumstances compel to live on 30 cents a day would be glad to see all the old millionaires spending each $70,000 a year on himself, or ten times that amount if he wants to. The money isn't lost."

(a) State clearly what advantage the writer of the above probably imagined that the public derive from the extravagance of Mrs. Gould and other rich people.

(b) Explain the fallacy in the doctrine.

(c) Show that the last sentence of the quotation is of no significance in the matter.

18. "The so-called Principle of Reciprocity is all rubbish. It is child's play to show that we can sell to other countries even if we do not buy from those countries. No British buyer of American goods asks the question whether America buys British goods? His only question is: 'Does this article in character and price suit me?' if so, he buys it. Further, it is a matter of common knowledge that a country will often buy a great deal from some other country, even though it sells little or nothing to that other country. Thus Germany has no better customer than England, whose goods she keeps out by tariff. So we buy largely from Brazil, though we sell her very little."

(a) State the Principle of Reciprocity.

(b) Show that the arguments against this principle contained in the above quotation have no bearing on the case.

19. "Our neglect of the South American trade is simply scandalous. We buy a large amount from Brazil every year but sell her almost nothing, leaving her markets to be gobbled up by England and other European countries. We ought to subsidize a great merchant marine running to South America, and drive Europe out of a market which is naturally ours."

Show that a very plausible argument can be made for the contention that we should be cutting off our own noses if we were to drive Europe out of the markets of South America.

Section C. The Law of Comparative Costs

A third fundamental principle of trade tries to answer the question: What condition must be fulfilled to make it worth our while to cooperate with our neighbors, individual or national, by engaging in trade with them? The economist would very likely affirm that there is really no necessity of answering the question in any other than the common sense way. It is worth our while to trade with other communities when

and only when their prices make it profitable to do so. "We can go deeper," he might say, "but we do not need to. There is no better index to the fulfilment of the deeper conditions necessary to make exchange-co-operation profitable than that given by comparative prices."

This solution of our problem, however, meets serious difficulties. A great many people are convinced on personal grounds that it is not a good thing to have trade go just where it naturally would in view of price conditions; they usually want to shut out some goods which, if we had regard only for prices, we would naturally buy from other people. They find no difficulty, either, in adducing excellent reasons, of a political and social sort, why we should do this. But, in order to bolster up their cause they usually bring forward arguments which they believe to be based on fundamental economic principles. They try to seek out some reason lying behind the surface fact of a favorable price, and this reason usually concerns our ability to produce for ourselves the thing we buy as well as, or better than, the country from which we buy it. If we can produce it more easily than the other people, we have a sure case for the wisdom of producing it ourselves. If we can produce it just as easily as the other people, the same conclusion is almost as certain. Even if we cannot produce it as easily but can only just produce it, many people are disposed to declare that we ought not to buy it from others. But these ideas are in part at least erroneous, and so the economist is driven to make the deeper analysis which would otherwise seem unnecessary.

One general condition requisite to profitable trade between two countries would surely be realized if each country is able to produce a commodity more cheaply than the other country produces that commodity—meaning, by more cheaply, with smaller expenditure of real cost, labor, waiting, ultimate resources, etc. Thus, let us suppose that iron is produced in country A at a cost of 25 days' labor (letting labor represent all real costs); while the same amount of iron costs

16 days' labor in country B. On the other hand, a yard of broadcloth costs in country A 3 days' labor and in country B 5 days'. Assuming that the significance or value of a day's labor is the same in both countries, then evidently both countries would gain if A should produce cloth for both, and B should produce iron for both.

On the basis of this illustration we may say that exchange will usually pay, if each of the exchanging countries can produce some particular thing much more cheaply than the other; and very likely the most important cases of profitable trade would be covered by saying that, when a country is absolutely superior to its neighbors in producing the goods it exports and is absolutely inferior in producing the goods it imports, such export and import is profitable.

But as was shown long ago by a fuller analysis, this statement does not cover all cases, and is in fact misleading. If we stopped here the reader might very naturally conclude that trade would pay *only* when the condition just explained was present, and that we ought never to buy a thing from other countries if we could produce that thing as cheaply as those other countries.

The unsoundness of the doctrine as applied to an *individual* is at once evident. Here, for example, is a lawyer who very likely can mow his lawn, cultivate his garden, and take care of his furnace much better than the person or persons whom he hires to do these things. Nevertheless, he devotes himself to the practice of his profession, and buys the services named from other people. And he of course acts wisely in doing so, for it is plain that he gains most by *using his whole time and energy on the kind of work for which he is best fitted.* He is not interested in the fitness or unfitness of his neighbor as compared with himself, but rather in the degree in which *his own fitness in one line is greater than his fitness in another line.* So long as can find a market for his possible output, he would better devote his time entirely to doing the kind of work for which he is preeminently fitted, and get

his supplies of other things from his neighbors, even though he can make those other things better than his neighbors.

What the lawyer cares about is not whether he can produce the thing he buys less cheaply than the man from whom he buys it, but whether he can produce that thing which he himself sells more cheaply than *he* can produce the thing which it will buy for him. In other words, what is the cheapest way for him to get shoes—to produce them himself or to produce legal services, sell these, and use the proceeds to buy shoes? It is his *comparative* efficiency in the two directions which determines his conduct. Put in another way, it is the comparative *cost* to *himself* of producing the two different commodities which determines whether he shall produce a given one or buy it. He naturally chooses to produce the one which has the lower cost to himself.

Now, a community or nation is in this respect no different from an individual. England, let us say, produces principally cloth, getting most other goods through exchange with outside communities. England is really better fitted to produce some of the things she buys than are the people who actually do produce them, and she is, moreover, perfectly well aware of the fact. But, like our lawyer, England, though superior to other countries in many respects, confines her productive efforts to the industry or industries wherein she is *most* superior. The condition which makes her desire to trade is not a certain ratio between her own efficiency and that of other countries, but rather a certain ratio between her own efficiency in one industry—put in terms of cost—and her own efficiency—put in terms of cost—in other industries.

But this alone would not make possible trade between England and other countries. These countries must also have a motive for wanting to trade. How is this possible? England, we have assumed, is superior all along the line; hence China must be assumed to be *inferior all along the line.* It is inferior in cloth, inferior in iron, inferior in potatoes. But while England, being universally superior, has a motive for

trading, we must now find a motive for China, in spite of the fact that it is universally inferior.

Though not so evident on the surface, this problem easily clears itself up on a little reflection. If China is inferior to England in respect to both cloth and iron, she will surely find an advantage in specializing *where her inferiority is less*. If she is three-fourths as efficient in producing iron, and only one-half as efficient in producing cloth, it will pay her to produce iron and buy cloth. Here again the matter which the country is interested in is, not the cost of each commodity at home, as compared with the cost abroad, but the comparative cost at home of the two commodities.

Thus, both the country universally superior in production, and the one universally inferior, might have adequate motive for resorting to exchange. Before exchange could actually take place, of course, the particular exchange that is desirable for one country would have to be the same that is desirable for the other. The differences in comparative efficiency should be complemental to each other. If England is more efficient in the production of cloth than in the production of iron, while China is more efficient in the production of iron than in that of cloth, then it will be feasible for them to effect the specialization which would naturally be profitable to them; for the greater superiority of the one just fits the smaller inferiority of the other. By using its cloth to buy iron, England takes advantage of its greater superiority; while, by using iron to buy cloth, China takes advantage of its lesser inferiority.

The principle which embodies the essential points brought out above has long been known as the Law of Comparative Costs. It may be formally stated as follows:

Broadly speaking, in order to make the exchange of two commodities between two countries profitable it is only necessary that the comparative cost of the commodity exported by either of the two countries should be less in that country than in the importing country.

The argument for this principle has perhaps been developed as fully as is necessary or desirable in the explanation leading up to its statement. However, it may be well to give it a little more definiteness by the use of an illustration. Accordingly, let us make two hypotheses in one of which the absolute cost of the commodity exported by either country is less in that country; while in the other hypothesis, this is true only of the comparative cost. For the first hypothesis, let us suppose that the cost of iron in England is 25 days' labor (labor being taken to represent all costs throughout our illustration), while its cost is only 16 days' in America; and that the cost of cloth per yard is only 5 days' in England, while it is 6 days' in America. For the second hypothesis, we will suppose that costs are the same as before except for that of cloth in America which we will assume to be 4 days'.

Under the first of these hypotheses, the absolute cost of iron is less in America, 16 days' to 25; while that of cloth is less in England, 5 days' to 6. Under the second hypothesis, on the contrary, the absolute cost of both iron and cloth is less in America than in England, 16 to 25 in the first case and 4 to 5 in the second. But, while the two hypotheses show different conditions in respect to *absolute* cost, they are alike in respect to *comparative* costs. Each makes the comparative cost of iron less in America, that of cloth less in England. Thus, the comparative cost of iron—its cost measured in that of cloth—is 16/4 or 4 units in America, and 25/5 or 5 units in England. On the other hand, the comparative cost of cloth—its cost measured in that of iron is 5/25 or 1/5 of a unit in England, while it is 4/16 or 1/4 of a unit in America. Our principle tells us that this condition, a smaller comparative cost for one of the two commodities in each of the countries, is usually sufficient to make the exchange of those products profitable.

The real reason why such a condition will make the exchange of English cloth for American iron profitable, in the business sense, builds on a principle of price belonging to a

later part of our subject; but that principle is sufficiently familiar to every one for our present need. It tells us that there must be a rough proportion between the prices of goods and their cost: iron costing five times as much as cloth must be worth on the market five times as much, while iron costing only four times as much as cloth will be worth only four times as much. It follows that in the American market it will take the proceeds of only four yards of cloth to buy a ton of iron, whereas on the English market it will take the proceeds of five yards to buy the iron. Conversely, in the English market it will take the proceeds of only 1/5 of a ton of iron to buy a yard of cloth, whereas in America this will require the proceeds of 1/4 of a ton of iron. Under these conditions it will surely pay America to exchange iron for cloth and England to exchange cloth for iron, in spite of the fact that the cloth costs England more labor than it does America.

Before leaving this topic one further comment should be added. We have all along spoken merely of the reciprocal trade of *two* countries. As a matter of fact, most international trade is not of any such directly reciprocal character—it is *triangular,* or *multi-angular.* England sells cloth to Brazil; Brazil sells beef and hides to America; America sells cotton and iron to England. At bottom, however, although a complete demonstration of the fact might prove very difficult, the cases of reciprocal and multi-angular trade are substantially the same. The condition which makes specialization and exchange profitable is a difference between the comparative real costs to one country of the things exchanged and their comparative real costs to other countries.

Illustrative Problems

1. Country A can produce pig iron at a cost of 10 days' labor per ton and broadcloth at a cost of 5 days' labor per yard. Country B can produce the iron at a cost of 14 days' labor and the cloth at a cost of 6 days' labor.

(a) What, in this example, are the comparative costs which our principle tells us must be unequal to make exchange pay?

(b) Prove in detail that, if transportation and all costs other than labor be ignored, exchange of these two products will pay.

(c) Which commodity will country A export?

2. Make a hypothetical case yourself and prove with it that exchange will not pay if comparative costs are equal.

3. "We may often by trading with foreigners, obtain their commodities at a smaller expense of labor and capital than they cost the foreigners themselves."—Sumner.

(a) Show with illustration that this is true.

(b) Show how such a trade could be profitable to the foreigner.

(c) What do you suppose is the ultimate cause which explains the fact that such trade can be profitable?

4. "We know that England can make ships more cheaply than we can, and so we should let her do the ship building and turn our capital to such things as we can do better than she can." Assuming the conclusion—that we should turn our capital to other things—to be correct, the reason given for it is not entirely satisfactory. Explain.

CHAPTER XIV

PRICE: PRELIMINARY

We have already more than once emphasized the point that, in the present economic order, exchange is the factor which *effects*—makes possible—the co-operation of men in their economic efforts and, what is equally important, *regulates or directs* that co-operation. As we have also noted, the chief process whereby exchange accomplishes the regulation is *moving prices up or down.* For example, if too little of any particular thing is produced, exchange presently gives us a higher price, which higher price makes the producing of the thing in question more profitable and so causes more to be produced. Again, exchange regulates the *utilization* of the stock already in existence, *through changes in price. Thus,* if the stock of any commodity is exceptionally small, the price rises, people curtail their consumption and thereby the abnormally small stock is made to go around. Finally, exchange regulates how wealth shall be *distributed,*—how much each person shall receive in wages, rent, interest, or profits, chiefly by *this same process of moving prices up or down.* From these facts, it is manifest that the processes of price-determination are, in the present order, of paramount importance, and that the natural laws which regulate these processes form a very vital part of the science of economics. We now enter upon the study of those laws. In the present chapter, we shall confine ourselves to the task of *clearing the ground for our study,* defining the more important concepts involved, setting forth the conditions assumed, and explaining the two principal forces at work.

Section A. Some Definitions

1. Prices

By price the economist means the sum of money at which a seller is ready to dispose of his wares or the one at which a buyer is ready to purchase or the one at which an exchange actually takes place. That is, a price has to do with an *actual transaction of exchange contemplated or consummated.* Herein it differs from *pecuniary value* in general; since the latter may be a price which persons *think* a commodity would or *ought* to command. A further mark of price is that it is concerned with a single conventional *unit* of the commodity, not with an aggregate. We speak of the price of a *bushel* of wheat, but not of the price of the wheat crop of the United States. For this latter purpose, the term *value* is used, and means simply the price multiplied by the total number of units.

2. Market

A word much used in price discussion is "market." As a noun, we mean by this the totality constituted by a group of competing sellers over against a group of competing buyers concerned in exchanging the same commodity. The one most essential condition is the *freely competitive* character of each of the two groups which together constitute the market. All the members of the sellers' group are trying to offer their wares to all members of the buyers' group; and all members of the buyers' group are trying to offer to purchase from all members of the sellers' group.

It should be noted that the definition omits any reference to a specific place. Though a market usually has a location, the really essential element in it is rather a threefold set of *relations*: (1) those among the sellers, (2) those among the buyers, and (3) those between the two groups over against each other. If men in Chicago, Detroit, and Duluth are freely competing with each other in selling wheat to the same general group of buyers, they belong to the same market

though located in widely separated cities. On the other hand, two persons living in the same city may belong to different markets for the same commodity, provided they are dealing with a different group of buyers. This point is best illustrated in the distinction between the jobbers' market and the retailers'. Mr. Sanders, a resident of Poughkeepsie, buying coffee *for family consumption* from his grocery, does not belong to the same market as Mr. Forsyth, another resident, who *imports* coffee from Brazil, but chances to reside in Poughkeepsie.

It must of course be admitted that, in a sense, all markets concerned with the same commodity—importers, jobbers, wholesalers—influence one another, and so, in a sense, constitute one great composite market. The buyers in each market are influenced by the attitude of the buyer group in the others; and so with the sellers. Each buyer in a market approaching the primary one is at once a buyer in the latter and a seller in some market approaching the consumer's. His attitude as a buyer, the intensity of his competition in the more primary market will be more or less determined by the attitude of buyers in the market where he is a seller. But, after all, this close and organic connection between the different markets for any commodity must not lead us to overlook the essential separateness of those different markets. When the same man buys and sells the same commodity in a market which is really one, his action is self-destructive, contradictory.* On the other hand, if any person is both buying and selling the same commodity, without involving any inconsistency, he is really dealing in *two* markets—the market in which he sells is a different market from the one in which he buys.

* This is sometimes done in stock and produce markets, just because the two acts neutralize each other. A dealer desiring to hedge, to escape the responsibility of an earlier transaction, enters into a neutralizing one.

3. Competition

In an earlier chapter we made some reference to competition, defining it in a general way as the striving for the same prizes, the pursuit of the same opportunities, by homogeneous units. It is not necessary to repeat any large part of those earlier comments; but, in view of the fact that competition comes to a focus, so to speak, in the field with which we are now concerned,—the determining of prices—it seems desirable to introduce one or two comments here.

First, let us once more remind ourselves of one of the most fundamental features of true competition, namely, that, as in all cases of true rivalry, the competing persons *must function in the same general way*. Buyers are competing with other buyers, not with sellers; sellers are competing with other sellers, not with buyers. The applicants for a job with the Michigan Central Railway Company are competing with one another, not with the railway company. So the railway company is competing, not with the applicants, but with other employers of such types of labor. Doubtless the successful applicant and the company will each try to gain some economic advantage at the expense of the other,—the applicant to get higher, the company to pay lower, wages than the market justifies. But this antagonistic striving is not competition. It belongs rather to another line of action, namely, bargaining, the process through which seller and buyer come to an agreement.

A second comment with respect to competition which it seems desirable to make is that, in a sense, full competition on the part of the persons belonging to either group—buyers or sellers—really involves some action on the part of the members of the other group. Strictly speaking, the competition of sellers is not real, but only seeming, unless every seller really gets his bid or offer before every buyer. *So the competition of buyers is only seeming, unless every buyer gets his bid or offer before every seller.* Since the utmost effort

on the part of sellers would hardly suffice to get their offers before all buyers, unless the latter do something to help in the process, we may say that competition can scarcely be adequate, completely realized, unless the buyers contribute to the result. So, since the utmost probable effort on the part of buyers could scarcely suffice to get their bids before all sellers, unless the latter do something to help in the process, competition on the buyers' side cannot be completely adequate, unless sellers contribute in some degree to the result. In other words, complete competition within either group requires that there shall be alertness, openness of mind, and enterprise in the opposite group.

A third comment with respect to competition which ought to be made concerns its inherent limits. It is a mistake to include under this term as used by the economist the policy of underselling a competitor at a loss as a means for accomplishing ulterior ends—e. g., driving him out of business, or punishing him for some personal injury. The competition of the economist is supposed to be directed to the gaining of an economic advantage derivable from the opportunity to make a particular sale or purchase. This means that, on the one hand, the seller will continue to lower his price until he gets for his commodity no more than it costs him, but no longer than this; and, on the other hand, that the buyer will continue to raise his bid until he pays for the commodity as much as it is worth to him, but no longer. It is only on competition when understood in this sense, that the principles of price to be explained in the following chapters are founded. They assume that competition will always cease when the immediate economic gain is completely eliminated. Cut-throat competition, predatory competition, to use a term having much vogue in recent years, is not included in the competition of economic theory.

Section B. General Conditions Assumed as the Basis of Price Doctrines

Another matter that needs comment as preliminary to our study of price-determination concerns the general conditions under which the processes involved are supposed to go on. The principles of economics, like those of any other science, are largely hypothetical. They assert that under certain assumed conditions Phenomenon A will be accompanied or followed by Phenomenon B; and conversely, they assert, or should be understood to assert, that unless the conditions named are present the appearance of the phenomena in the relation mentioned will not occur, or at any rate need not be expected to occur. It is therefore essential, for a clear comprehension of price doctrines, that we keep in mind just what the assumed conditions are.

We assume, first, that each man taking part in the exchange process is an ideal or perfect economic man. His feelings and motives are predominantly, if not wholly, concerned with getting the maximum of satisfactions for himself, and they consistently remain so from day to day and year to year, all other motives such as charity and sympathy being shut out. The man has also full knowledge of market conditions and excellent, not to say perfect judgment in making decisions. And his actions are entirely free of caprice, passion, and prejudice, so that he would naturally buy always in the cheapest market and sell in the dearest.

The assumption of a perfect economic man naturally carries with it the assumption of a perfect market where the man's operations are performed. In this market every seller is supposed to be successful in putting before every buyer the particular opportunity he is offering, and every buyer is supposed to be successful in putting before every seller the opportunity which his desire to purchase creates. The most essential features of such a market would be, first, extensive and efficient means of gaining information and disseminat-

ing it among buyers and sellers, and, second, conditions favorable for allowing men to act rationally on the information received. Finally, this perfect economic man in the perfect market is supposed to carry the principle of competition to its logical conclusions—to continue competing so long as there is a surplus of immediate economic advantage over the sacrifices made, but no longer.

Now, as every one knows, the ideal conditions described are never entirely realized in any actual exchange situation. Men are influenced by motives other than the economic, their knowledge and judgment are imperfect and their actions inconsistent. The perfect market, too, is rarely if ever to be found. The great exchanges which provide our nearest approach to it, have ample means of disseminating information, but they often fall short in other respects because the excitement, the rumors, the tendency to imitation—these and other conditions which flourish among a large number of men gathered in the same room—cause buyers and sellers to act without rationality and deliberation. Moreover, we know that the pure competition of the economic hypothesis is always more or less hampered, and often greatly hampered, by the cut-throat tendency on one side and by monopoly on the other.

But, although these ideal conditions are never entirely realized, we are compelled, if we wish to make any progress at all in our science, to accept them as the fundamental basis of our reasoning. The human intellect is of but limited reach and power; and in economics, as in any other science, it is quite incapable of studying simultaneously all the forces at work, or all the varying intensities of even one force. We have to study the different forces separately under simplified conditions by eliminating many elements and assuming a fictitious purity and uniformity in those retained. It should be added, however, that if this is the only way to make progress, it is in economics, as in other sciences, a perfectly feasible way. It enables us first to gain a knowledge of fundamental principles, unconfused by exceptions. When we undertake to ap-

ply the principles in actual life, it may be necessary again to take into account the various forces from which our attention has been abstracted in the purely economic analysis. But, after all, exceptions to the principles are much less important than the principles themselves; and, anyway, we cannot even begin to understand the former until the latter come to hold an assured place in our minds. However abstract, therefore, however dependent upon imperfect or unreal hypotheses, the principles constitute the deepest, most vital facts in actual price-determination, and so must be fully mastered.

Section C. **Demand**

It is a fact with which almost everyone has some acquaintance that the determination of price, in any but its most superficial aspect, is somehow a matter of demand and supply. Accordingly, we must now give some attention to these elements. The present section will be devoted to a study of demand.

1. The Nature of Demand

By the demand for any commodity, the economist means in general the quantity of that commodity which buyers stand ready to take at some specific price. In this definition let us emphasize, first, the point that demand is the amount which buyers stand ready to take,—offer to take. That is, demand must not be confused with (a) the amount men *want,* on the one hand, nor (b) with the amount men *actually buy,* on the other. Demand must not be confused with the amount of a commodity which men *want.* Mere want, mere desire, not backed by buying power and not brought to an issue in a decision to purchase if the price is satisfactory, does not constitute demand. The penniless man looking in at the baker's window, however hungry, adds nothing to the demand for bread. It is plain, of course, that men's needs, wants and plans play a vital role in *determining* demand. Thus, if an electric company is intending to use the water-power of the

Huron river on a great scale for supplying current to Detroit and other cities, the company will need a large amount of copper wire, and, so, will doubtless come on the market to buy such wire. But while needs and plans constitute one condition of demand, they do not constitute demand itself. Demand exists only when the company stands ready to buy the wire. (b) But, if we take care not to confuse demand with the amount which people want or need, we must be equally careful to distinguish it from the amount *actually bought*. The amount of demand and the amount bought will often be equal; but the meaning, the connotation, of the two phrases is very different, and this difference is of the highest importance. The amount which buyers stand ready to take plays a very great part in determining price. But the amount actually bought plays no such part,—in fact, is itself determined after price is determined. To repeat, demand, in our definition, means neither the amount of a commodity wanted, nor the amount bought, but the amount which men *stand ready* to buy.

A second point in our definition which needs emphasis is the phrase "at some specific price." Every proper statement affirming the existence of a demand must explicitly or by implication represent this demand as conditioned on a certain price. Thus, it is proper to say, "The demand for silver at 55 cents per ounce is 120,000 ounces." It is not proper to say "The demand for silver is 120,000 ounces," leaving out the phrase "at 55 cents per ounce," except on condition that both the person making the remark and the one to whom it is addressed already have one particular price in mind, as for example, the price at which sales are actually being made at the time the statement appears. The grounds on which this contention rests are perhaps sufficiently evident. The affirmation that "the demand for silver is 120,000 ounces," strictly interpreted, ought to mean that there is a demand for 120,000 ounces of silver *whatever be the price*. But, of course,

no such affirmation could reasonably be made. If any person familiar with business matters were to make a statement like the above, he would doubtless mean, and other persons would understand him to mean, that the demand for 120,000 ounces existed *at the current market price* or at some price approximately equal to the market price.

One further point in explanation. Our definition implies that the relation between the volume of demand and the conditioning price is *two fold*. It means, first, that *if* price is the one named, the demand will be of the volume indicated, and secondly, that, *only* if price is as *low* as the one named, will demand be of the volume indicated. Accordingly, if we say that the demand for silver is 120,000 ounces at 55 cents, we should be understood as affirming both the following propositions: (a) If any person wishes to insure that demand shall *not* get as large as 120,000 ounces, he must insure that price does *not* go as low as 55 cents. (b) If any person wishes to insure that demand *shall* be as great as 120,000 ounces, he must insure that price *does* go as low as 55 cents.

2. The Relation of Demand to Price

In the preceding discussion, it was shown that the quantity of demand is conditioned upon price. We must now explain this conditioning more fully. Let us suppose that, on a

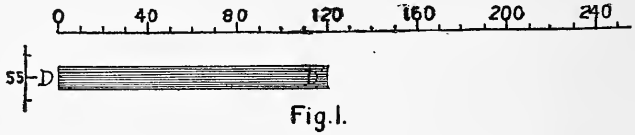

Fig. I.

certain day, the demand for silver at a price of 55 cents is just 120,000 ounces as in our last illustration. This quantity is represented in the accompanying diagram by the rectangle DD′,—the vertical scale at the left indicating the price in cents and the horizontal scale at the top indicating the num-

ber of ounces in thousands. Now, starting with this hypothesis that 120,000 ounces are demanded at 55 cents, we may be quite sure that the same persons who stand ready to buy that amount at the price stated, or, anyhow, some other persons, are ready to buy,—have the mental attitude needed to induce them

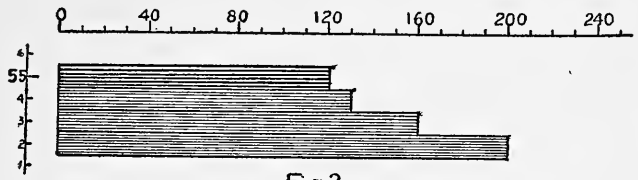

Fig. 2.

to buy,—say, 10,000 ounces more at a price of 54c; 40,000 ounces more at a price of 53c; 80,000 ounces more at a price of 52c; and so on. That is, right alongside of the 120,000-demand which would be realized if a price of 55 cents were reached, and a part of the same general situation, we have

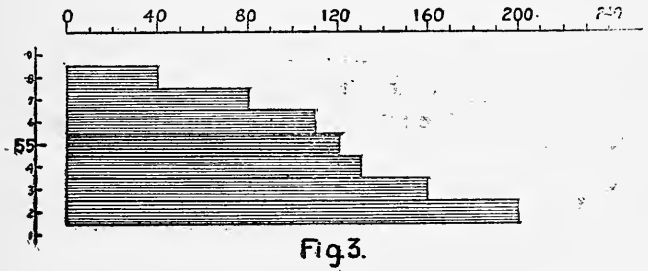

Fig. 3.

various other potential demands which would just as surely be realized if lower prices were established. In Figure 2, we have these other demands presented along with demand at the 55 cent price.

But, not only is it involved in the demand situation that larger amounts would be taken were the price lower than 55

cents; the complementary statement is also true. Given the present mental attitude of buyers, the amount demanded by them would be smaller if price were higher than 55c, instead of lower. Thus, some of the people whose offer to buy at 55c aggregated 120,000 ounces, would, if price rose to 56c, withdraw a part or all of their former demand; they, or others, would withdraw still more of that demand, if price rose to 57c; still more, if it rose to 58c; and so on. That is, as a part of the same general situation from which we set out, we have a series of potential demands at prices *above,* as well as at prices below, the assumed one of 55c. Supposing these demands to be 110,000 ounces at 56c, 80,000 ounces at 57c, 40,000 at 58c, and so on, and combining them with the demands indicated in our last diagram, we should have the result represented in Figure 3.

We are now prepared to explain the meaning of a phrase which will be frequently used in the following pages,—the phrase "demand schedule." Demand, as we have just seen, is always relative to a particular price stated or implied, and the amount of demand, generally speaking, varies inversely though not *proportionally* to price: the lower the price, the greater the demand; the higher the price, the smaller the demand. It follows that the facts of demand at any time require for their adequate statement a series of conditional propositions. Thus, the supposed case for silver would be most adequately stated as follows:—

The demand would be 40,000 oz. if price were as low as 58c.
The demand would be 80,000 oz. if, and only if, price were as low as 57c.
The demand would be 110,000 oz. if, and only if, price were as low as 56c.
The demand would be 120,000 oz. if, and only if, price were as low as 55c.
The demand would be 130,000 oz. if, and only if, price were as low as 54c.
The demand would be 160,000 oz. if, and only if, price were as low as 53c.
The demand would be 200,000 oz. if, and only if, price were as low as 52c.

Such a series of propositions, we call a *demand schedule.* In order to abridge the statement of it, we will put it in the

TABLE 1

Price *cents*	*Demand* 000 *oz.*
58	40
57	80
56	110
55	120
54	130
53	160
52	200

form of two columns of figures with the proper headings, Price and Demand, as shown in Table 1. The student must always remember, however, that it is, in effect, a series of conditional statements, such as those already given.

A demand schedule of the general type just presented probably comes nearer to representing the facts of experience than would a more symmetrical one. But as our purpose in using these schedules is primarily pedagogical, we shall change this one to a form which can be used more effectively in clearing up the theory of price. In this new schedule, the variations of demand consequent upon changes in price are represented as *uniform,* 10,000 ounces in each instance. Thus altered, and carried both higher and lower, our schedule will appear as in Table 2. In diagrammatic form it is presented in Figure 5.

TABLE 2

Price *cents*	*Demand* 000 *oz.*
60	70
59	80
58	90
57	100
56	110
55	120
54	130
53	140
52	150
51	160
50	170

One further point which should be noted before we leave this immediate topic is a possible ambiguity in our use of the expressions "demand has changed," "variation in demand," etc. In one connection, we employ this language to mean that demand *at a given price* is now different from what it has been *at the same price;* in another connection to mean that *actual* demand—no price being specified—has changed. Understood in the second sense, such statements are relatively unimportant, yet will occasionally be made. Thus we may have occasion to say that, "on account of the sharp advance in wheat yesterday, the demand

for cash wheat for milling purposes fell off greatly." But, when we are interested in the causation of a change in price, we must be careful to exclude this meaning of a "change in demand." Such a change is the consequence of a change in price, not the cause of that change. As we shall soon learn, it is very probable that the sharp rise in price indicated was due to a change in demand,—of course a rise, not a fall—; but, if so, the change must have been of the first kind,—the demand at the same price must have increased.

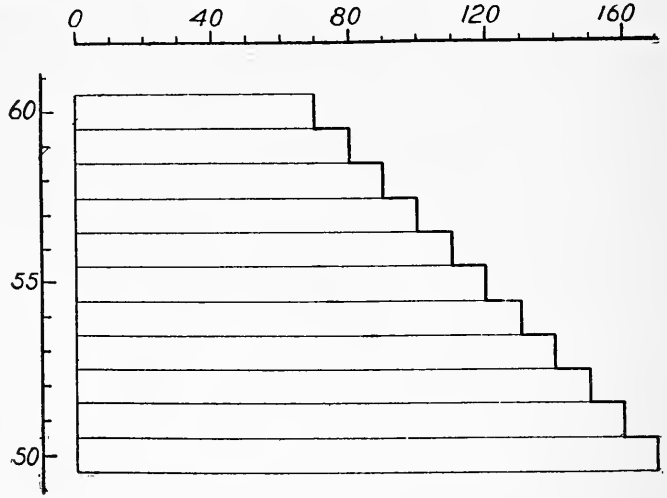

Fig 5

In order to avoid the ambiguity just referred to, it might be well to use the expression "the demand *schedule* has advanced," when we mean that demand at the same prices has increased. As we shall see, a general change in the demand schedule, not in just one item of demand, is really necessary to bring about a change in price; and so this method of expression would be more adequate than any other. But it would probably be futile to attempt to make such a change in usage. We must, therefore, be careful not to confuse the two possible meanings of "changes in demand."

Since the points established in the preceding discussion are of much importance in later connections, we will give them the emphasis derived from definite formulation in a principle.

Principle. The Law of the Inverse Elasticity of Demand. *Demand is always relative to a particular price expressed or implied, and, broadly speaking, varies inversely as said price, though no proportionally.*

3. The Interpretation of Demand Schedules

As we shall have frequent occasion, during our study of the theory of price, to make a discriminating use of demand schedules, it is very important that, at the outset, we should gain familiarity with the true nature and significance of these schedules and their various parts. First, it is to be noted that demand at any particular price is a *composite* made up of many sections or *increments,* each one of which, except the last, would appear at some higher price. To clear this up, let us start with the lowest line in our demand schedule on page 221, the demand at 50 cents. Manifestly, this 170,000 ounces consists of the 10,000 which came in only when price fell to 50c, added to the 160,000 already wanted at 51c. But the 160,000 ounces, in turn, consists of the 10,000 which came in at 51c, added to the 150,000 already wanted at 52c. And the 150,000 ounces, again, is the 10,000 coming in at 52c added to the 140,000 wanted at 53c—and so we might continue all the way to the top of the schedule. Accordingly, the 170,000 ounces wanted at 50c is the sum of all the increments of demand which would successively appear, if price were to pass through all stages from the highest to the lowest. This fact is graphically presented in Figure 6, where the small letters represent the successive additions to demand which are supposed to appear at each price. Thus, *q* comes in at 50c itself; *p* came down from 51c; *o,* from 52c; *n,* from 53c; *m,* from 54c; *l,* from 55c; and so on.

Another important matter concerns the different *divisions*

into which the various sections or increments of demand group themselves when any particular price has been established. The first break occurs between the *excluded* increments and the *included* ones. Thus, if price proves to be 55 cents, all the increments of demand which depend upon a price lower than this will, of course, be shut out; while all increments which depend upon this or a higher one will be

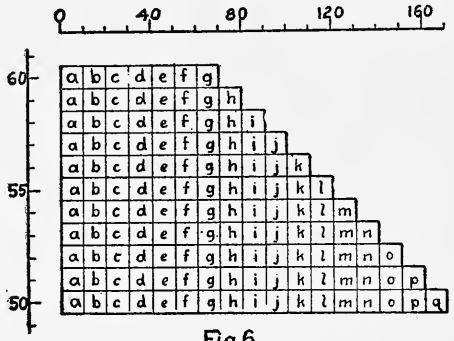
0
40
80
120
160
60
55
50
a b c d e f g
a b c d e f g h
a b c d e f g h i
a b c d e f g h i j
a b c d e f g h i j k
a b c d e f g h i j k l
a b c d e f g h i j k l m
a b c d e f g h i j k l m n
a b c d e f g h i j k l m n o
a b c d e f g h i j k l m n o p
a b c d e f g h i j k l m n o p q

Fig. 6.

included, for the man who was ready to buy at 56c or 57c or 58c will surely be in the same frame of mind if price falls to 55c. In Figure 7, the included increments of demand are represented by the shaded squares, and the price at which each comes in is indicated by its position. The excluded increments of demand are represented by the unshaded squares.

A still more useful grouping of the different increments divides the included ones into *marginal* and *intra-marginal,* and distinguishes the excluded ones as *extra-marginal.* The *marginal increment of demand* is the last of the included ones, the last to appear when an actual price of 55c was being established.* In Figure 7, it is represented by the lowest

* For the sake of brevity, we not infrequently say "the marginal demand" instead of "the marginal *increment* of demand." In doing this, we must avoid confusing the marginal increment of demand with the *total* demand at the margin, that is, the marginal increment plus all the preceding increments.

of the shaded squares, labeled "Marg;" for this 10,000 ounces, which would not have been wanted at a price of 60c or 59c or 58c or anything above 55c, must, plainly, be the last addition to demand. This particular increment of demand is a most significant one in price-determination; since the desire of sellers to bring it out is one of the motives which lead them to bid price down to 55 cents. Hence we naturally dis-

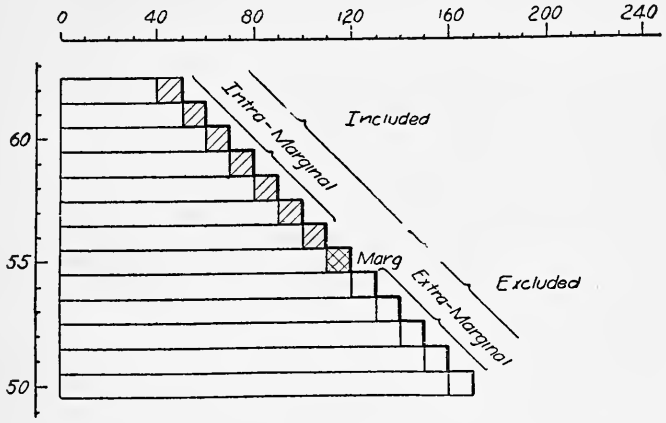

Fig 7

tinguish all other included sections or increments, all sections which are realized even when actual price is as high as 56 cents,—as being *within* the margin, and designate them intra-marginal increments. On the other hand, the excluded sections of demand, the sections or increments which would appear only if price fell to figures lower than 55 cents, being *without* the margin, are naturally called extra-marginal increments. As will later appear, *the first* among the extra-marginal increments of demand is the only one which plays a vital role in the immediate determining of prices.

Now, the marginal increment of demand is *the one which comes in with that price, among all the prices at which any*

increment of demand comes in, which is the **lowest** *of the series.* Thus, in Figure 7, with a price of 55 cents, the prices at which the included increments of demand come in are 55 cents, 56 cents, 57 cents, 58 cents, and so on; and it is the lowest of these, 55 cents, at which the last or marginal increment of demand comes in. This lowest price of the series, *viewed as the price on which is conditioned the forth-coming of the marginal increment of demand,* is a concept of prime importance in our present study. It will be designated the **marginal demand price.**

Clear and definite ideas concerning the marginal demand price can best be attained by starting with the hypothesis that demand remains constant through several changes in price.* Such a demand schedule is represented in the accompanying table and Figure 8. There is no addition to demand after 59 cents is passed until 53 cents is reached; therefore, if actual price were 54 cents, the marginal demand price would be 59 cents,—that being the price at which the last addition to demand was made. This price, 59 cents, would obviously continue to be the marginal demand price, if actual price rose to 55 cents or 56 cents or 57 cents or 58 cents or 59 cents. If, however, actual price became 60 cents, the marginal demand price would change to 60 cents; since the 10,000 ounces which formerly came in at 59 cents would no longer be wanted, and so the 10,000 ounces coming in at 60 cents would be the last increment of demand.

Demand 000 *oz.*	*Price cents*
50	62
60	61
70	60
80	59
80	58
80	57
80	56
80	55
80	54
90	53
100	52
110	51

* As we shall learn in a later chapter, long-time demand schedules,—schedules which sum up the demand facts for a whole period—often show this peculiarity.

Under the demand schedule represented in Figure 8, the marginal demand price was 59 cents, even though actual price was as low as 54 cents. The typical market schedule, however, is more like that represented in Figure 7, where the marginal demand price would necessarily *coincide* with the *actual* price. The reason is plain. It is assumed that, with every fall in price, some addition to demand takes place; hence, whatever price in the series became the actual price, some portion of the demand would be forthcoming only because that particular price was established; and so that price would be the *marginal demand* price as well as the actual

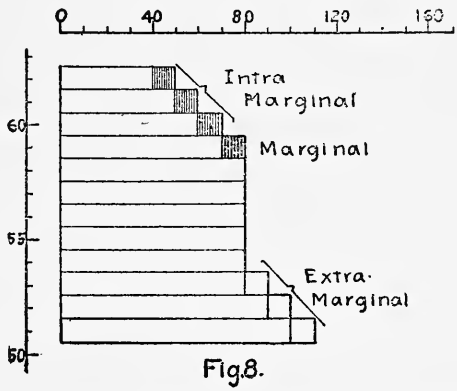

Fig.8.

price. But even though in the cases chosen as typical, actual price and marginal demand price necessarily coincide, the other concept is not superfluous or useless. We shall later meet long-time schedules wherein these quantities do not coincide; and, even when they do coincide, they are after all essentially different things,—*one, the marginal demand price, being in part at least the determinant of the other, actual price.*

Another demand price which it is important to distinguish is the first extra-marginal one,—the price which would be necessary to make actual the first extra-marginal increment of demand. Under the demand schedule represented in Figure

8, the first extra-marginal demand price would be 53 cents, as long as actual price was anything from 59 cents down to 54 cents. If actual price rose to 60 cents, the first extra-marginal demand price would be 59 cents. If actual price fell to 53 cents, the first extra-marginal demand price would be 52 cents.

As a matter of course, we often have occasion to apply the terms marginal, extra-marginal, and intra-marginal to *buyers*. Marginal buyers are those who make some or all of their purchases *only when, and because, actual price has fallen to the marginal demand price*. In other words, the marginal buyers are the ones who are responsible for the marginal increment of demand. So, the intra-marginal buyers are the ones responsible for the intra-marginal increments of demand. Their purchases would be assured, even if price were higher than it proves to be. The extra-marginal buyers are the ones responsible for the extra-marginal increments of demand. They make no purchases and are frequently called the excluded buyers.

Section C. Supply

1. The Nature of Supply

We have considered one of the two most essential elements in price-determination, demand; we must now take up the second, supply. In general, we shall understand the supply of any commodity to mean the *quantity of that commodity which sellers stand ready to dispose of at some specific price.*

Here we need to emphasize, first, the statement that supply is the amount which sellers stand ready to dispose of. In particular, the supply of anything should not be confused either (a) with the total amount in the hands of producers or dealers, or (b), on the other hand, with the amount actually sold. (a) Supply should not be confused with the total

INSERT, p. 228

ILLUSTRATIVE PROBLEMS.

1. Suppose that the demand schedule for silver at a certain time is represented by the accompanying table, and answer the questions which follow.

Demand 000 *oz.*	*Price* *cents*
66	68
70	67
70	66
70	65
84	64
92	63
100	62
100	61
100	60
100	59
107	58
120	57
120	56
120	55
133	54
145	53
145	52
156	51

(a) Interpret the first three lines; the last five lines.

(b) What would be the marginal increment of demand if actual price were 67 cents? 65 cents? 63 cents? 59 cents? 57 cents? 55 cents?

(c) What would be the first extra-marginal increment of demand if actual price were 66 cents? 65 cents? 61 cents? 59 cents? 54 cents?

(d) What would be the marginal demand price if actual price were 67 cents? 66 cents? 63 cents? 60 cents? 56 cents? 52 cents?

(e) What would be the first extra-marginal demand price if the actual price were 65 cents? 66 cents? 67 cents? 63 cents?

(f) Who would be the marginal buyers if actual price were 66 cents? 53 cents? 55 cents? 60 cents? 54 cents?

(g) Who would be the first extra-marginal buyer if actual price were 66 cents? 65 cents? 61 cents? 58 cents? 56 cents? 52 cents?

2. Suppose that on the second Saturday of October a section of the demand schedule for wood in Ann Arbor is as follows: 1 cord wanted more at $5; 7 more at $4.75; 8 more at $4.50; and so on. Put it into tabular form.

3. Suppose that the conditions of demand for Milton's autographs are such that 1 would be wanted if the price were $200; 2 if price were $175; 4 if $150; 5 if $140; 8 if $125; 9 if $110; 12 if $100; 13 if $90; 15 if $75; and 20 if $50. Put this demand schedule into tabular form.

(If the problem had said: 1 wanted at $200; 2 at $175; and so on, it would have meant the same thing.)

amount in the hands of producers or dealers. This total we call stock; and only a part of it constitutes supply,—so much of it as people stand ready to sell at some price or other. But, though stock is not the same as supply, it is of course the immediate source of supply, and, therefore, does much in determining supply. On the one hand, it always sets an upward limit to supply. On the other hand, it exists only to become supply, and so must ultimately make supply as large as itself. The supply of wheat in the market today may be only 10,000,000 bushels, though the stock is 1,000,000,000 bushels; but, in the course of the season, most of the 1,000,000,000 bushels is bound to be offered for sale, and, therefore, taking the season as a whole, the supply is certain to become substantially coincident with the stock.*

Again, supply must not be confused with the amount actually sold. The reason is analogous to that which was given to show that we should not confuse demand with the amount bought. As a matter of fact, "the amount which people stand ready to dispose of" may be, but need not be, equal to "the amount which is actually sold." But, even if the two were always quantitatively equal, the meaning, the connotation of the two phrases would be different. "The amount which sellers stand ready to dispose of" plays a very great part in determining price; but "the amount actually sold" is itself determined after price is determined.

A second point in our definition which needs emphasis is suggested in the phrase "at some specific price." No statement affirming the existence of a given volume of supply can be recognized as adequate unless it represents supply as *conditional on some particular price.* Thus, it is proper to say,

* The distinction between stock and supply is more particularly applicable in the discussions of the present chapter. When we come to consider normal price, the price which tends to prevail over some considerable period, we usually have to regard supply as conterminous with stock.

"The supply of silver is 120,000 ounces at 55 cents an ounce;" but unless the current market price is implied and understood, it is not proper to say, "The supply of silver is 120,000 ounces." For the latter statement, literally interpreted, means that sellers stand ready to dispose of 120,000 ounces whether the price be low or high; and, obviously, such a statement would in most cases be very absurd indeed.

2. The Relation of Supply to Price

We have just seen that supply like demand is always relative to a specific price. We must now explain this relation more precisely. First, the facts of supply, like those of demand, require for their complete presentation a supply *schedule,* a series of statements giving the amount of supply at each of a series of prices. This follows from the fact already brought out that the volume of supply is always relative to price. In the second place, though supply is like demand in the sense that its volume is relative to price, the supply changes which follow changes in price are exactly opposite to the demand changes. The volume of supply increases as price rises, and diminishes as price falls, whereas the volume of demand, as we have seen, diminishes as price rises and increases as price falls. In short, supply varies directly, though not proportionally, as price. Accordingly, a supply schedule for silver analogous to the demand schedule given on page 220 would read as follows:

The supply would be 200,000 oz. if, and only if, price were as high as 58c.
The supply would be 160,000 oz. if, and only if, price were as high as 57c.
The supply would be 130,000 oz. if, and only if, price were as high as 56c.
The supply would be 120,000 oz. if, and only if, price were as high as 55c.
The supply would be 110,000 oz. if, and only if, price were as high as 54c.
The supply would be 80,000 oz. if, and only if, price were as high as 53c.
The supply would be 40,000 oz. if price were as high as 52c.

As in the case of demand, we shall substitute for this schedule one better adapted to the work of explanation, that is, one in which the changes in volume consequent on changes in price are *uniform*. Such a supply schedule for silver is represented in Table 3 and, diagrammatically, in Figure 9.

TABLE 3

Price	*Supply*
cents	000 oz.
60	170
59	160
58	150
57	140
56	130
55	120
54	110
53	100
52	90
51	80
50	70

The expression "supply has changed" shows the same fault of ambiguity that we found in "demand has changed." It can mean either (1) that supply at a particular price is different from what it was at the same price or (2) that actual supply, price being ignored, is different from what it was. This second meaning is made necessary by the fact brought out in our previous discussion that supply is relative to price,—will

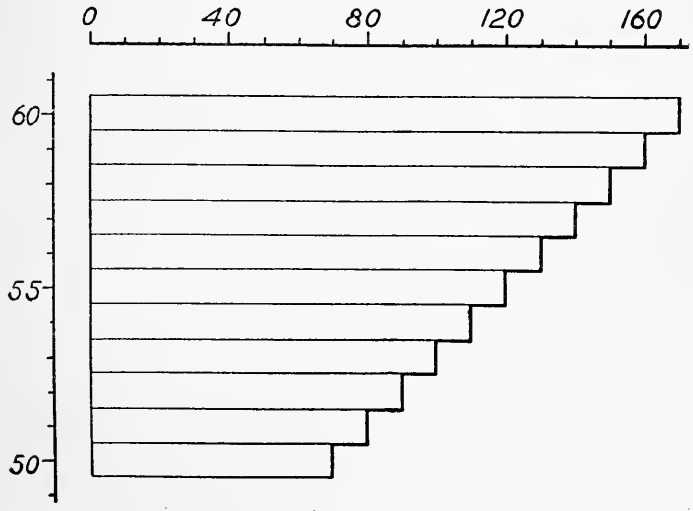

Fig 9

change as price changes. The former idea would be more precisely stated by saying that the supply schedule has changed. We should, therefore, watch carefully for the double meaning and avoid the confusion likely to result therefrom.

The points thus far explained concerning the relation of supply to price, may be put into formal shape as follows:

Principle: The Law of the Direct Elasticity of Supply.

*Supply is always relative to a particular price expressed or implied and, broadly speaking, varies directly, though not proportionally, as price.**

3. The Interpretation of Supply Schedules

The first point to be noted in the interpretation of supply schedules exactly corresponds to the first one noted under demand schedules. The supply at any particular price is a *composite,* made up of many different portions, each one of which, save the last, would appear at some other price, in this case, a *lower* one. Thus, the supply at 60c, 170,000 ounces, consists of the 10,000 which comes on the market when, and because, price advances from 59c to 60c, added to the 160,000 already offered when the price was only 59c; this 160,000, in turn, consists of the 10,000 which comes in when, and because, price rises from 58c to 59c, added to the 150,000 already offered at 58c; this 150,000, again,

* Remember that we are now dealing with the *immediate* supply schedule, the supply schedule which is effective at any one moment. Later we shall have to do with long-time or normal schedules, covering a whole period of some length. To these latter schedules, the principle just laid down is not always applicable. In one set of cases, the supply may be equivalent to the whole stock and, therefore, does not vary at all. In another set, the supply is a *potential* output, which may be *indefinitely large,* provided cost of production is covered; and, hence, the schedule shows no supply at prices below the one covering cost and an indefinitely large supply at that cost price and others above it. But these points will be more fully presented later.

is the 10,000 coming in at 58c added to the 140,000 already offered at 57c; and so on. The facts are illustrated in Figure 10, where the little squares marked with small letters show the increment which supply receives in each instance as price rises to the level indicated. Thus, in the case of the 60c rectangle, the last increment, *q*, appeared first when the 60c price itself was reached; *p* came up from 59c; *o* from 58c; *n* from 57c; *m* from 56c; and so on.

With supply, as with demand schedules, a second very important task is to distinguish the different divisions into which

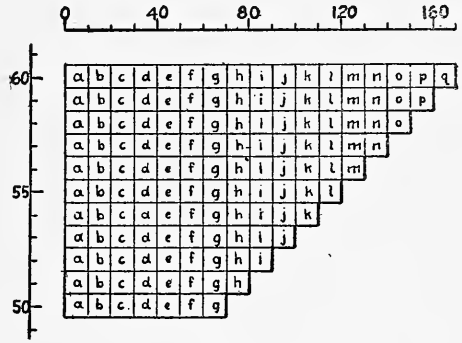
0
40
80
120
160
60
55
50
a b c d e f g h i j k l m n o p q
a b c d e f g h i j k l m n o p
a b c d e f g h i j k l m n o
a b c d e f g h i j k l m n
a b c d e f g h i j k l m
a b c d e f g h i j k l
a b c d e f g h i j k
a b c d e f g h i j
a b c d e f g h i
a b c d e f g h
a b c d e f g

Fig. 10

the different sections or increments group themselves just as soon as any particular price is established. The principal grouping, as before, is into *included* and *excluded* portions. If price is 55c, all possible increments of supply which are conditioned on a price of 55c or anything lower, will be *included* increments; while all possible increments of supply which are conditioned on a price of 56c or anything higher, will be *excluded* increments. Again, among the included increments, the most important is the marginal one, the one which is the *last* to come in when a particular price is being established. The remainder of these included increments we will call the *intramarginal* increments. The excluded increments will also be

called the *extra-marginal* ones. The location of these various sections of supply is plainly indicated in Figure 11.

Another point which, although fairly obvious, needs the emphasis of further comment, is the following: In our example, the increment of supply which comes in at 55c is the last one to come in and, being the last, it is by definition the marginal increment of supply. But 55c is the *highest* of the prices at which any supply comes in. Hence the marginal increment of supply is *the increment coming in with that price, among all the prices under which any increments come in,*

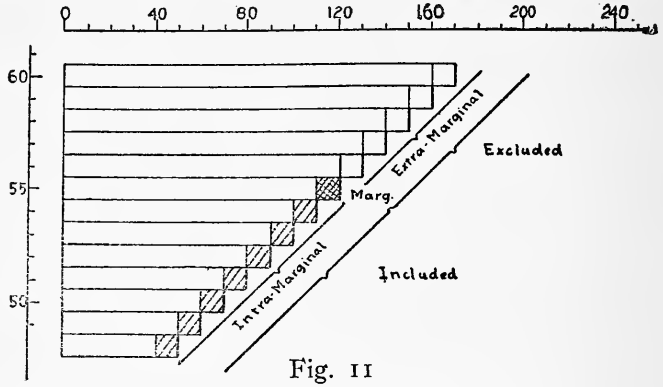

Fig. 11

which is the **highest.** This is just the opposite of what we found to be true in the case of demand; for the marginal increment of demand is the one which comes in at the *lowest* of all those prices which bring in any additions to demand. (Compare Figures 7 and 11.) The same contrast between supply and demand schedules shows in the intra-marginal and extra-marginal increments. The intra-marginal increments of supply come in at prices *below* the marginal one, while the intra-marginal increments of demand come in at prices *above* the marginal one. On the other hand, the extra-marginal increments of supply come in at prices *above* the marginal one, while the extra-marginal increments of demand come in at prices *below* the marginal one.

Two other concepts closely related to those just expounded are the marginal supply price and the *first* extra-marginal supply price. These phrases designate in each case the price which must be realized in order to bring out the corresponding increment of supply. Their meaning can best be shown by supposing for the moment that supply does not change with every change in price but remains constant under several prices, as represented in the accompanying table and Figure 12. After the 51c price has been passed, supply receives no increment until 57c is reached. In consequence, 51c is the marginal supply price so long as actual price is anything from 51c to 56c; while the first extra-marginal supply price is 57c. In these marginal and extra-marginal prices, we have the same antithesis between supply and demand schedules as has appeared in other connections. The marginal supply price is the *highest* of all the prices on which depends the coming in of the included increments of supply; while, as we saw, the marginal demand price is the *lowest* of the prices on which depends the coming in of the included increments of demand. So the first extra-marginal supply price is the one *next above the highest* of all included supply prices, while the first extra-marginal demand price is the one *next below the lowest* of all included demand prices.

Price cents	*Supply* 000 *oz.*
59	110
58	100
57	90
56	80
55	80
54	80
53	80
52	80
51	80
50	70
49	60
48	50

The supply schedule embodied in Figure 12 was purposely so constructed as to make it possible for the marginal supply price to differ from the actual price. But the typical supply schedule for any moment is more commonly like the one given in Figure 11; and, under that schedule, the marginal supply price and the actual price would necessarily coincide. Nevertheless, the concept of marginal supply price is not super-

fluous. As will presently appear, this coincidence of the marginal supply price and the actual price is, in part at least, due to the fact that the marginal supply price determines the actual price,—brings the actual price into coincidence with itself; and this becomes a fact of much importance in the deeper determination of prices, which we study in later chapters.

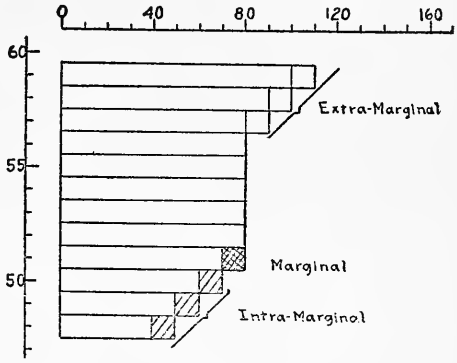

Fig. 12

It is hardly necessary to add that we often have occasion to apply the terms marginal and extra-marginal to *sellers*. Marginal sellers are those who offer to sell some or all of their offerings only when, and because, actual price has risen to the marginal supply price. In other words, marginal sellers are the ones responsible for the marginal increments of supply. Their offerings would not be made, if price were lowered. Extra-marginal sellers are those responsible for the extra-marginal increments of supply. They, of course, make no sales and are commonly referred to as excluded sellers.

Illustrative Problems

1. Suppose the conditions of supply of Milton's autographs to be such that 15 would be offered if the price were $200; 13, if it were $175; 12, if $150; 9, if $140; 8, if $125; 5, if $110; 4, if $100; 2, if $90; and 1, if $75.

(a) Make out this supply schedule in tabular form.

(b) Make out a combined demand and supply schedule using a demand schedule of your own.

2. Suppose the supply schedule for cordwood on a certain Saturday to be as follows: 1 cord offered if price is $4.50; 2, if price is $4.75; two more, if $5; three more, if $5.25; 10 in all, if $5.50; 17, if $5.75; and 8 more, if $6.

Make out a combined demand and supply schedule for this wood using a demand schedule of your own.

3. Suppose that the supply schedule for silver at a certain date is represented by the accompanying table, and answer the questions which follow:

Price *cents*	*Supply* 000 *oz.*
68	163
67	150
66	150
65	142
64	135
63	120
62	120
61	120
60	112
59	100
58	100
57	94
56	85
55	85
54	85
53	72
52	72
51	60

(a) Interpret the last five lines, beginning at the last; also the tenth to the fifth.

(b) What would be the marginal increment of supply if actual price were 55c? 60c? 63c? 58c? 52c? 65c?

(c) What would be the first extra-marginal increment of supply if actual price were 54c? 56c? 59c? 64c? 67c?

(d) What would be the marginal supply price if actual price were 67c? 65c? 63c? 62c? 59c? 55c?

(e) What would be the first extra-marginal supply price if actual price were 66c? 63c? 61c? 59c? 55c? 52c?

(f) Who would be the marginal sellers if actual price were 67c? 64c? 63c? 59c? 56c? 54c?

(g) Who would be the first extra-marginal sellers if actual price were 66c? 61c? 59c? 58c? 55c? 52c?

CHAPTER XV

PRINCIPLES GOVERNING THE IMMEDIATE DETERMINATION OF PRICES

In order to make an adequate study of price, it seems almost indispensable to attack that problem at successive levels, in other words, with successive degrees of thoroughness. We shall begin, therefore, by trying to settle the more superficial phases of the problem; follow this with a solution somewhat more thorough; and finish with an attempt to penetrate the whole matter to the bottom. Our study will thus break roughly into three parts: (1) the *immediate* processes of price determination,—*market price,* (2) the *intermediate* processes,—*normal price,* and (3) the *ultimate* processes. All such divisions are of course more or less arbitrary, but the one used will, I believe, justify itself as we proceed. The present chapter, then, is concerned with the immediate processes of price determination.

Section A. **The Law of Single Price**

From the facts of demand and supply presented in the last chapter, the student might naturally expect to find each commodity selling for several different prices. The appearance of a particular portion of demand, we learned, is conditioned on the establishment of one particular price, the appearance of another portion on the establishment of another price, and so on; and an exactly similar statement is true for supply. At almost any price, then, buyers could find someone ready to sell, and sellers could find someone ready to buy. Even if the forces we are about to study seemed likely to set up a certain price, say 55 cents in our silver problem, why is it not reason-

able to expect that sales would after all be made at both higher and lower prices?

Under some circumstances, this would undoubtedly prove to be the case. If several buyers with different notions as to what they wish to pay, go to as many different sellers, and, without inquiring of more than one seller make their purchases, some will certainly pay more and some less for the same commodity. The reason is that each buyer is unaware of the offerings of sellers other than the one he has visited. Similarly, if various sellers are dealing each with an isolated customer, some will get larger prices and some will accept smaller, because each is unaware of what other customers might be willing to pay. Even in the same trading room it sometimes happens that the noise, crowding, and excitement so operate as practically to separate the sellers and buyers into different groups, making sellers in one part of the room unaware of what buyers in another part will pay, and buyers in one part unaware of what sellers in another part will take. Here also, therefore, some buyers will pay more than they would really need to if they looked about them a little, and some sellers will accept less.

But the cause of these variations is plainly something abnormal. The market described is not even approximately the perfect market which our study postulates. Full competition between the different sellers on the one side and the different buyers on the other is not realized. Some of the sellers do not have a chance to provide every buyer with an opportunity to purchase from them. Some of the buyers do not have a chance to provide every seller with an opportunity to make a sale to *them*. If all sellers and all buyers did so provide, the result would be very different. No buyer would pay more than any other, because other sellers, desiring to get his custom, would underbid the seller about to receive the exceptionally high price,—would so to speak, *force the buyer to take their wares at the lower price*. Neither would any seller

accept less than any other, because buyers other than the one about to get the commodity at the lower price would promptly overbid that one,—would, so to speak, *force the seller to take a higher price*. In a market which is truly single and theoretically perfect, therefore, any commodity at any one time must be selling at a single price.

In the real world, of course, there are no theoretically perfect markets. The great exchanges for wheat, cotton and steel where many buyers and sellers actually meet in the same room and where almost every conceivable means is available for informing one's self of the facts, doubtless at times approach perfection; but ignorance, folly and the failure of competition always prevent the condition from being reached; and in ordinary markets, naturally, this is much more emphatically true. Nevertheless, the tendency toward a single price set up by the forces mentioned above is always sufficiently strong to be of real and practical significance. Even in the retail trade, differences between the prices of the same commodity in the same market or in connected markets are at once recognized as abnormal. The smallest differences are remarked upon; anything like an indefinite enlargement is quite impossible; and with the spread of greater knowledge, alertness and skill among buyers and sellers they must tend rapidly to diminish and disappear.

Summarizing the above discussion, we have the following principle:

Principle. The Law of Single Price.

Within the limits of a truly single and theoretically perfect market, no commodity can have more than one price at the same time; and even within the limits of imperfect markets or groups of connecting markets, any commodity must tend to have a single price,—allowance being made in the latter case for the expense of shifting from one to another of the connecting markets.

Section B. The Law of Supply and Demand

We are now prepared to explain the actual processes of price-determination through what is commonly known as *the law of supply and demand.* In doing this, we shall deal with demand and supply schedules of the regular, symmetrical sort which we have called typical, though it will be necessary later to note some variations from these. Let us begin by placing before ourselves, in both tabular and diagrammatic form, our typical demand and supply schedules combined into one. In the table, the common price is placed in the middle column, while the demands corresponding to the several prices appear in the first column, and the supplies in the third. The diagram in Figure 13 represents the supply rectangles superposed on those of demand in such a way that the boundaries of the rectangles which express demand and supply, respectively, at any particular price, coincide as far as their length will permit. To make it easy to distinguish at a glance the demand and supply rectangles, the right hand ends of the latter are traced in a heavy line.

Demand 000 *oz.*	*Price cents*	*Supply* 000 *oz.*
70	60	170
80	59	160
90	58	150
100	57	140
110	56	130
120	55	120
130	54	110
140	53	100
150	52	90
160	51	80
170	50	70

From all the data now before us, it is easy to derive a series of propositions containing the most important facts of immediate price-determination. First, *any price at which supply is in excess of demand tends to be replaced by a lower price,* through the competition of sellers. The reason is not far to seek. As long as such a price prevails, sellers can not expect to dispose of as much of their goods as they wish to sell even at a lower price. Thus, in the accompanying sched-

ule, a price of 56 cents would make supply 130,000 ounces and demand only 110,000, though sellers are ready to dispose of 120,000 ounces even if they can not get more than 55 cents. Under these conditions, sellers would have two reasons for bidding price down: (a) such a procedure would increase the demand by 10,000 ounces, and (b) it would decrease the amount offered by an equal amount.

In the second place, *any price at which demand is in excess of supply must tend to be replaced by a higher one,* through the competition of buyers. As long as such a price prevails, buyers can not expect to get as much of the goods as

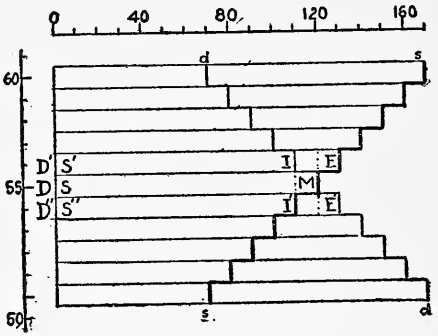

Fig. 13

they wish to buy even at a higher price. Thus, a price for our silver of 54 cents would make demand 130,000 ounces, and supply only 110,000, though buyers are ready to take 110,000 at 55 cents. The 55 cent buyers would, therefore, have two reasons for bidding the price up to their figure (a) by doing so, they would bring in 10,000 more units of supply, and (b) they would shut out 10,000 units of demand.

A third point which necessarily follows from the two just made is that equilibrium in the price-making forces can not be reached at any price which makes demand and supply un-

equal; hence all such prices are necessarily shut out. Prices which fail to equalize demand and supply can not stand.

On the other hand, we can readily see that any price which does equalize these two quantities will bring about equilibrium, and can, therefore, stand. The only forces at work are the self-interest of sellers, on the one side, and that of buyers, on the other. But both these become quiescent when a price is reached at which supply and demand are equal. All sellers who are ready to sell at so low a figure are assured of disposing of their wares; while all buyers who are ready to buy at so high a figure are assured of getting what they want. It follows that, if a price can be found which equalizes supply and demand, that price will secure equilibrium among the price-making forces. And, if it does this, if it leaves no force exerting an upward or a downward pull, that price must tend to prevail.

We have just seen that, if a price be found at which demand and supply are equal, that price must tend to prevail as against any prices at which either supply or demand is in excess of the other. We have now to add that, with what we have called the typical demand and supply schedule, *there is bound to be such a price.* This results inevitably from the principles governing these schedules. Supply varies in the same direction as prices; demand varies in the opposite direction. In consequence, there is necessarily some price at which they are equal;* at some point the curves representing them are bound to intersect. It follows, then, that, with typical supply and demand schedules the price which tends to be established must be one which equates supply and demand.

We will now summarize the preceding discussion in a formula which contains the most essential elements of what is commonly called the Law of Supply and Demand.

* A slight qualification of this will appear in the course of our discussion.

Principle. The Law of Supply and Demand

Given a typical demand and supply schedule, price must tend to rise so long as demand is in excess of supply and to fall so long as supply is in excess of demand; it must therefore move up or down till it reaches a figure which equates supply and demand; and at this point it can rest, since here the price-moving forces become quiescent.*

The principle just set forth covers the main part of what is really essential in the law of supply and demand. Other significant points are little more than corollaries of this. One of the first concerns the effect on price of changes in either supply or demand,—meaning, remember, changes in the schedules—the different supplies or demands at a series of prices. As respects supply, the answer is contained in the following corollary:

Corollary 1. *A rise or fall in the supply schedule tends to bring about an opposite (not proportional) change in price.*

A glance at the facts will show this conclusion to be inevitable. A rise in the supply schedule means that supply is now in excess at the going price. But the principle tells us that

* On this point a doubt may arise in the student's mind if he gets to experimenting with supply and demand schedules. For it is not difficult to change the schedule used in our discussion so that there is no longer any price at which supply and demand are just equal. Such a schedule would result, if we make demand at 60 cents 60,000 ounces instead of 70,000, increasing it as before by 10,000 each time, and leaving the supply column as before. In such a schedule, supply would be 10,000 in excess at 55 cents, while demand would be the same amount in excess at the next lower price, 54 cents. This difficulty, however, is only a seeming one. In a case like that supposed, buyers and sellers would simply *reckon prices in a smaller unit.* That is, they would make bids at 54½ or 54⅜ or 54⅝ and so reach a point at which supply and demand would almost certainly come to equality.

price must tend to fall so long as supply is in excess of demand. The *rise* in supply must therefore tend to bring about a *fall* in price, that is, an *opposite* change. On the other hand, if the supply schedule declines in volume, demand at the going price, the price which made supply and demand equal, will be in excess of supply. But the principle tells us that price must tend to rise so long as demand is in excess of supply. A decline in the supply schedule must, therefore, tend to bring about a *rise* in price, an *opposite* change.

Corollary 2. *A rise or fall in the demand schedule tends to bring about a like (not proportional) change in price.*

The argument is similar to that employed for the corollary above. A rise in the demand schedule makes demand at the going price in excess of supply; under the principle, therefore, it tends to cause a rise in price, which constitutes a *like change.* A *fall* in the demand schedule makes supply at the going price in excess of demand; and this, under the principle tends to bring about a lower price, which is also a *like change.*

Corollary 3. *A commodity, the schedule of which shows a higher ratio of demand over supply at a given price than the schedule of another commodity shows at the same price, will also show a higher actual price.*

Thus, if at a price of 51 cents, the ratio of the demand for silver over the supply is 2 to 1, while that of copper is 2 to 3, the price of silver will naturally be higher than that of copper. The price of silver would have to move up to equate supply and demand; while that of copper would have to move down. This corollary emphasizes the point which the business world somewhat inexactly expresses in saying that "price

is all a matter of the ratio between supply and demand." Its importance lies in the explanation it provides of the great, and often very trying, differences in the prices of things, and especially in the remuneration obtainable for supplying different types of services.

Section C. The Relation of Actual Price to Certain Demand and Supply Prices

In the reasoning employed in Section B to establish the principle of supply and demand, we necessarily touched upon some of the deeper forces and processes which are determining prices and bringing them under the rule of supply and demand. We will now inspect these forces a little more closely. In particular, we will show the dependence of the prices actually established on *certain special prices* among the different demand and supply prices.

The method which we employed to prove that the one price at which demand and supply are equal must prevail was to show that all other prices are certain to be shut out by the competition of either buyers or sellers. Actual price, we saw, must not go above 55 cents lest it should shut out the marginal buyers, nor up to 56 cents lest it should let in new sellers; and on the other hand, it must not go below 55 cents lest it shut out the marginal sellers nor down to 54 cents lest it let in new buyers. Now, if these same facts be interpreted from our present standpoint, they tell us that the upper limits of price are fixed, or may be fixed, by either of two prices of the schedule, and that the lower limits are, or may be, fixed by either one of another two prices of the schedule. Let us now *define more precisely these limiting prices.*

Price could not go above 55 cents lest it should shut out the marginal buyers. But 55 cents, as the price which brought in the marginal buyers, is *the marginal demand price.* It follows that one of the upper limits of price is *the marginal demand price.* Again, price could not go up to 55 cents be-

cause this would let in new sellers. But the price which will let in new sellers we have already defined as *the first extra-marginal supply price*. Consequently, the second possible upper limit of price is the *first extra-marginal supply price*.

Turning now to the lower limit, price could not go below 55 cents lest it shut out the marginal sellers. But 55 cents, as the price which brought in the marginal sellers, is *the marginal supply price*. Accordingly, one of the possible lower limits of price is *the marginal supply price*. Finally, price could not go down to 54 cents because that figure would let in new buyers. But the price which would let in new buyers we have already designated *the first extra-marginal demand price*. Hence the second possible lower limit of actual price is *the first extra-marginal demand price*. We have thus four prices which act or may act as the limits within which actual price must be established.

In reading the above account of this matter, the student may object that, since both the limiting prices, above or below, fix the same price, it is hardly worth while distinguishing more than one of them. If actual price can not go below 55 cents, it certainly can not go down to 54 cents; if actual price can not go above 55 cents, it of course can not go up to 56 cents. This is no doubt quite true as applied to these perfectly symmetrical schedules which were used to explain the working of the law of supply and demand. We shall find, however, that many schedules, anyhow many supply schedules, are much less regular than those used. In such cases, only two or, sometimes, only one, of the four limiting prices may be actually operative. Our analysis, therefore, could be adequate only if it brought out *all* the limiting moments, as was done above.

To clear up more completely the matter just commented upon, let us imagine a schedule in which the limits set by the different moments would not coincide. Thus, in the accompanying table, demand remains constant at 120,000 ounces,

Demand 000 *oz.*	*Price* *cents*	*Supply* 000 *oz.*
80	61	150
90	60	140
100	59	130
110	58	120
120	57	120
120	56	120
120	55	120
130	54	120
140	53	120
150	52	110
160	51	100
170	50	90

from 57 cents to 55 inclusive, while supply remains constant at 120,000 ounces from 58 cents to 53 inclusive. Since supply and demand are equal only at three prices, 57, 56, and 55 cents, the actual price must be one of these. But with actual price one of these, the marginal demand price must be 57 cents, since this is the one which brought in the last increment of demand; the first extra-marginal supply price must be 59 cents, since this would bring in the next increment of supply; the marginal supply price must be 53 cents, since this brought in the last increment of supply; and the first extra-marginal demand price must be 54 cents, since this would bring in the next increment of demand.

But actual price, as already noted, can not go above 57 cents, the marginal demand price, though as far as the first extra-marginal supply price is concerned, it could go to 58 cents. The latter price, therefore, plays no part in the final fixing of the actual price. Again, actual price can not go down to 54 cents, the first extra-marginal demand price, though, for all that the marginal supply price affects the matter, it could go down to 53 cents,—supply does not begin to fall off till 52 cents has been reached. Plainly, then, in a case of this sort, two of the limiting moments of price, those which come from supply, are inoperative,—*both the upper and lower limits of price being fixed by demand prices.* Further, it is plain that both of the moments coming from the demand side have to be taken into account; for neither actually fixes price, each of them only *fixes one of the limits within which price may range.*

In the schedule just used to show that it is not necessary that all the four limiting prices should be operative in every case, supply remained constant for a longer series of prices than demand, and so was prevented from taking part in actual price-determination. It is manifest that if the hypothesis were reversed, the result would also be reversed: the limits of price variation would now be fixed by the marginal supply price and the first extra-marginal supply price. Sellers would not permit actual price to go up to a certain point lest they should let in a new supply, while buyers would not let actual price go below a certain point lest they should shut out a portion of the supply.

It is hardly necessary to add that the two types of schedules just used do not exhaust the possibilities of the matter. Another could be imagined under the working of which the upper limit of price was set by the marginal demand price, while the lower was set by the marginal supply price. Under still another type, the upper limit would be set by the first extra-marginal supply price, and the lower by the first extra-marginal demand price. Finally, there is one type of schedule, and this will prove to be a very important one, under which the immediate fixing of price *must be credited to just one of our four limiting prices,* namely, *the marginal supply price.*

The purpose of the preceding discussion was to emphasize the immediate dependence of actual price on one or more of just four demand and supply prices. To avoid possible misunderstanding, it is perhaps best to insert a caution at this point. In giving so decisive a place to certain special demand and supply prices, we do not mean that other demand and supply prices have no part in the matter. To establish any price whatever, demand and supply must come to an equality. With the schedule which appears on page 241, this equality of demand and supply was reached with each at 120,000 ounces, and at an actual price of 57, 56, or 55 cents. But

with neither demand nor supply was this total brought out by the last or marginal price acting alone. Thus, the marginal demand price, 57 cents, contributed to this total only 10,000 ounces, 110,000 ounces coming down from previous, higher prices. If these earlier increments of demand had not come in,—if only the total demand had been limited to the 10,000 ounces which appear at 57 cents,—equality of demand and supply could have been reached only at a much lower point, and, so, actual price would have been much lower. The whole demand of 120,000 ounces was necessary to make possible an actual price as high as 57 cents. It follows that the intra-marginal demand prices, the prices which were able to bring out the earlier increments of demand, have a part in the fixing of the actual price as truly as do the marginal and the first extra-marginal demand prices.

But now we must be careful lest, in trying to avoid one misunderstanding, we fall into another equally objectionable. Although we admit that demand and supply prices other than the marginal and first extra-marginal ones share in the fixing of actual price, we by no means relinquish the contention that the limits of actual price are *immediately* determined by one or more of the four prices named. While total demand is obviously made up of the sum of *all* the increments of demand, *these different increments must not be thought of as perfectly homogeneous units entering into the total in just the same way.* The case is not analogous to that of a pair of scales, the measuring pan of which is loaded with several different weights to balance the object being weighed. In bringing down the pan, each of those weights acts in just the same way as every other. The case is quite otherwise with the different increments of demand or supply. While all influence the result, *they function quite differently* in doing this. The explanation is that each is in a very important sense different from every other. This difference consists in the fact that the emergence of any one depends on the

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ILLUSTRATIVE PROBLEMS.

1. "On the Black Friday of 1869, gold was sold on one side of the room for $1.60 when it was being sold on the other for $1.35, etc."—Sumner.

(a) Why is such a fact noteworthy from the economic point of view?

(b) How was it to be explained, do you suppose?

2. Professional men, especially those of the medical profession, frequently try to eliminate the law of single price in respect to their services.

(a) Why is it for the interest of physicians to get rid of this law?

(b) Give some reasons why they are quite likely to have more or less success in carrying out this policy.

3. "The price can not long remain above cost of production. For, so long as it is above, profits will be exceptionally high; this fact will cause production to increase; as a result supply will become . . . . , and price will . . . . ."

Fill in the blanks, using the Law of Supply and Demand.

4. "The demand for wheat was increased beyond the capacity of the best lands to furnish it, and so a new supply was brought out by putting inferior lands under cultivation."

To make that reasoning quite complete, one or two other links should have been put in between the premise and the conclusion. Supply those links.

5. "Demand having increased, price rises. But this higher price cuts down demand; and so price comes right back to where it was in the first place."

Show that this result could not be reached in a normal case.

6. The high rate of exchange made exporting more than usually profitable. As a result, the supply of cotton for the foreign market. . . . . the price . . . . ., this caused the foreign demand to . . . . ., and so exports . . . . Fill out the blanks, applying the Law of Supply and Demand.

7. Change the demand and supply schedule on page 248 so that the limits of price-variation would be fixed by the marginal supply price and the first extra-marginal supply price.

8. Change the above schedule so that the limits of price variation would be fixed by the marginal demand price and the first extra-marginal demand price.

9. "Five persons from a shipwrecked steamer are temporarily saved by getting on a raft; a sixth climbs on, and the raft sinks. Obviously it was not just the sixth person who sank the raft, but *all* the six persons. No more do the marginal and first extra-marginal demand and supply prices by themselves fix actual price. *All* the demand and supply prices equally share in the process."

Show that the analogy is false.

with neither demand nor supply

appearance of its own special price, or one lower, in the case of demand, or one higher, in the case of supply. This being true, the different increments can not be treated as interconvertible,—each one playing the like role with every other. *The lowest-priced of all the demand increments and the highest-priced of all the supply increments hold key positions.* Any price which will bring them out can prevail, even though it differs ever so much in one direction from the special price necessary to bring out any other increment of the total. On the other hand, no price which does not bring them out can prevail, though it brings out every other increment of either demand or supply. In short, the immediate determination of price limits is with the four demand and supply prices which have been so often named; *the part of other demand and supply prices is to assist in determining what prices shall occupy these key positions.*

In closing this rather long discussion, I am going to add one more illustration from analogy to the very considerable number which have been used by different writers in this connection. Suppose that the owner of a meat market located in a small town starts out to buy a dozen steers among the neighboring farmers, and that he can get two from the first farm on his route, one from the second, three from the third, one from the fourth, and so on. How far will he have to go to get the whole twelve? Manifestly, the answer is: *as far as the distance to the farm at which he buys the last one or more necessary to make up the full number.* In other words, the total distance to be traversed will depend immediately on *the distance to the marginal increment, and on that only.* But this distance, in turn, will manifestly depend in part on the increments obtainable at farms nearer by. In consequence, these earlier increments share in determining the total distance. Their influence, however, is *only indirect.* They help to make the total distance short or long *because, and in so far as, they make the distance to the* marginal *increment short or long.*

CHAPTER XVI

NORMAL DEMAND SCHEDULES

At the beginning of the last chapter, it was explained that our study of price-determination was to be divided into three parts according as it was concerned with the immediate, the intermediate, or the ultimate stages of price-determination. The first of these stages has already been covered. In the present chapter, we begin our study of the second.

The necessity for a separate treatment of these two stages can be made clear by means of an illustration. In the early nineties of the last century the bicycle, which had just recently been invented, was in process of evolution. At that time, the price of any machine likely to prove serviceable to the buyer, was in the neighborhood of $100 to $125. That this price was more or less fully the result of the natural working of the laws of price which were considered in our last chapter, there can be no question; at any rate it was doubtless one which brought demand and supply into approximate equality. However, the price was believed by all well-informed persons to be something quite *temporary* in character. Prospective buyers with lean pocket-books or with more than the usual amount of prudence and patience confidently expected and waited for a decided fall. "The present price," said they, "is plainly abnormal. Doubtless for the time being various causes may enable producers to hold the price up to $100; but this cannot last many years."

Here we find implied the chief reason for distinguishing between the study of the immediate processes of price-determination which occupied the last two chapters and the study of deeper processes which begins in this. Behind the price temporarily prevailing under the influence of immediate forces, there is a price which tends to be established by the

more permanent forces and toward which the actual price is constantly being driven. And this other price, which we call the "normal," is in the long run of far greater significance than the one established by immediate forces. Three chapters will therefore be given to the study of normal price; this chapter and the next to preliminary matters, and the last to the actual processes of normal price-determination.

While the meaning of the phrase "normal price" is indicated in the last paragraph, an additional comment or two may serve to make it clearer. It means a *price which is always tending to prevail during a given period as a result of the action of those forces which operate throughout the period,* especially the larger of those forces. But, though always tending to prevail, we should note that, because of the interference of temporary forces, normal price seldom if ever does prevail; and for this reason it is often defined as the price toward which actual price constantly gravitates, or about which actual price constantly oscillates. Again, normal price should not be confused with average price, which is a mere arithmetic concept. The two might coincide quantitatively, though it is probable that they seldom do. In any case, they differ radically in meaning or connotation; and, if a certain price were at once the average of all actual prices for a given period and the price tending to be established by the permanent forces of that period, we should be interested in that price solely because it fulfilled the second condition.

One of the first matters to be emphasized in connection with normal price is that the law of supply and demand already presented still governs the *immediate* determination of price. In creating a tendency for some particular price to prevail, the permanent forces necessarily operate through, and only through, their power to determine the immediate demand or supply schedule. Thus, if certain forces tend to establish a normal price of 30 cents for wooden chairs, they do this simply because they have the power so to influence the supply schedule that, every time the price goes above or be-

low 30 cents, a tendency is established to pull it back to that point *under the natural working of the Law of Supply and Demand.*

But the law of supply and demand dominates normal price in an even deeper sense. Besides the immediate demand and supply schedules which at any moment prevail there are long-time or *normal demand schedules* and long-time or *normal supply schedules* covering the whole period under consideration. Thus, when the immediate demand schedule for silver on a particular day in 1918 was 20,000 ounces, if price were 60 cents; 22,000, if 59; 25,000, if 58;— there must also have been a schedule for the *whole year* 1918, a schedule which might have read something like this: 260,000,000 ounces wanted if price were 60 cents; 275,000,000, if it were 59; 290,000,000, if 58. Similarly, alongside the immediate supply schedule there must also have been a long-time supply schedule on a much larger scale.

Now the price which is tending to be established all through this period,—the normal price,—is determined by the relation between these long-time or normal demand and supply schedules. Thus, suppose that the schedules for silver given on page 241 represent the long-time supply and demand conditions for that metal, rather than the immediate ones. Then the price which these schedules would naturally establish, 55 cents, would tend to be *the normal price* for the whole period, one year; just as, in the example given, it tended to be the *market price* for the single day when those schedules were effective. With these long-time schedules, as with the market schedules, there would be one and only one price at which demand and supply were equal; and, under the normal working of economic forces, this one price would tend to be established. In undertaking our deeper study of price, therefore, we are not leaving *behind* the law of supply and demand, but merely bringing out forces and processes which lie a little deeper. In fact, all our later exposition of the theory of

price will, in a sense, do little more than elaborate and complete the principles of supply and demand.

We have seen that the deeper forces determining normal price necessarily act through supply and demand,—long-time supply and long-time demand; so that behind normal price we find *normal* supply and demand schedules, just as behind market price we find market supply and demand schedules. The remainder of this chapter will be devoted to **normal demand schedules.**

In analyzing normal demand schedules, our first need is to consider the deeper factor or element which lies behind demand *prices*. What determines the prices which in the long run buyers stand ready to pay for a given quantity of goods? In answering this question, it is necessary that we should go to the schedule of the individual buyer and ask ourselves what motive or motives finally determine his conduct. For, obviously, the general or social schedules with which we have to deal are composites or aggregates of numerous individual schedules. Thus, when we say that, according to the general demand schedule for silver, 180,000,000 ounces are wanted if price is 55c, we mean that the different amounts of demand at 55c from the schedules of all the different buyers of silver will, when added together, give a sum of 180,000,000 ounces.

The student should not, of course, be misled by this emphasis upon the priority of individual schedules over the general market schedule, into thinking those individual demand schedules are *made up independently of social forces.* The wants of any individual, and, therefore, the valuations which he puts upon goods, are necessarily in a very great measure the creation of the community in which he lives, *just because his standards, ideals, and tastes are* in great measure the creation of that community. We are born into the family, into society, into the state; and our ideals are never formed independently of these groups. But this admission does not at all

conflict with our doctrine that the demand schedules of the market are composites, made up by adding together the demand schedules of individuals. For, however large may be the share of social forces in the determination of our wants, those forces finally express themselves through the demand of individual men. Goods are purchased not by the group will, nor by the group ideal, but by concrete and separate persons. We proceed, therefore, to consider the normal demand schedules of the individual. Here our chief task is to study the elements or *factors lying behind individual demand prices.*

First, each price appearing in the demand schedule of the individual is *his valuation, his money estimate, of the importance or significance to himself of the particular increment of his demand which is conditioned on that particular price.* Thus, if his schedule of apples reads as follows: one peck wanted, at $2.00, two at $1.50 each, 3 at $1.25 each, and so on down to 12 at $.50 each, this means that the significance to him of a second peck as estimated by himself is $1.50, of a third is $1.25, and of a twelfth is $.50. In other words, *marginal demand prices are expressions of marginal significances as estimated by the buyer.* It follows that whatever statements with respect to the former, demand prices, may properly be made, similar statements may properly be made with respect to significances or importances.

It must of course be admitted that the estimates, above alluded to, of the significance of commodities to the individual, lack the precision which would be required in most other measurements of a scientific character. Nevertheless, these estimates are very real and sufficiently precise for the purposes of economic life, as is abundantly proved by the fact that our buyer *actually decides* in favor of the apples rather than using his money to buy something else, if in view of all the circumstances the price seems reasonable.

The foregoing illustration had to do with a consumption product. But the same proposition could be affirmed of goods

bought by a manufacturer not for consumption, but to be used in a way to earn a profit. The prices which such manufacturer stands ready to pay for given quantities of any commodity express his estimates of the significance or importance which those quantities of the commodity have for him. Hence, we may treat the demand schedule of an individual for any commodity as, in effect, the *significance* schedule of that same commodity. Whatever we have a right to say about the demand prices of the individual's schedule, we also have a right to say about the significances which, in his opinion, the different quantities of the commodity possess for him.

But this explanation does not go deep enough. Why do goods have significance to the individual, and what determines the degree of their significance? The immediate, and from the economist's standpoint, the ultimate ground of significance or importance to an individual is **utility** — capacity in an object or condition to satisfy wants. This should be plain enough in the significance schedule of an ultimate consumer, for example, our householder. It is not so obviously true for buyers who intend to sell again the goods they have bought, or to use them in producing something else which they will sell; for the ultimate utilities of such goods or their products do not interest the persons dealing in them. At bottom, however, the cases are not materially different. The significance schedules of middle-men and producers are—and must be, if these persons are to make any kind of a success of their business—fairly faithful embodiments of the schedules of consumers. Broadly speaking, then, the thing which in the last analysis determines significance schedules is *utility to consumers*. Further, just as the demand schedule of an individual for a certain commodity is based upon, and corresponds to, his significance schedule for that same commodity; so the individual's significance schedule is based upon and corresponds to, his utility schedule for that same commodity. Hence, whatever we can say about the significances of a commodity we can also say about the corresponding utilities as

these are estimated by the individual interested. From the consumer's standpoint the terms "significance" and "utility" are capable of reciprocal substitution. This is not to say that they are synonymous, but only that, wherever we can use either of them in treating price-determination, we can also properly use the other.

Our analysis has brought us to utility as lying behind and determining significances as these lie behind and determine the demand prices of the consumer. It will naturally be inferred from this that, in the study of individual demand prices, utility constitutes something final and fundamental. We are called upon, therefore, to give a little special consideration to the theory of utility, its meaning, and the principles governing it.

The general meaning of utility is already familiar to us. It is the capacity to satisfy wants. In view of this definition it might perhaps be expected that we should at once set about making a systematic study (1) of the different wants of man and (2) the properties of things whereby they are fitted to satisfy those wants. As a matter of fact, we deal very little in these questions. The second of the two is mainly the business of the technical arts. We have considered its strictly economic aspects and its more important technical ones in discussing various phases of production, and that is all, as economists, we need to do. The first part of the task indicated—the study of wants—also receives relatively little attention from the economist. This study, including the nature of wants, their origin and classification, the possible and desirable methods of modifying them—these seem naturally to belong to the sciences of psychology, education, and sociology. In general the economist assumes that such knowledge of wants as is essential to his work is possessed by most intelligent persons, and his special study of them is very limited in scope. To him they are simply **forces**, capable of a rough, quantitative measurement, powerful to accomplish economic

consequences. On this side, they demand a brief discussion, though little need be said that is not familiar to most persons and promptly accepted when once presented.

Now, the principal point which needs to be made concerning quantitative behavior of these fundamental forces, human wants, connects itself with the familiar fact that these wants are *capable of satiation and that by a progressive course.* Let us, for example, suppose ourselves to make an experiment in the consumption of some divisible commodity, such as food, starting with the smallest amount feasible for use, increasing it by very small increments, and noting the results. We should doubtless find our experience breaking into something like the following stages: (1) the gratification from each additional unit greater than from the last preceding, (2) the gratification from the additional unit the same as that from the preceding, (3) the gratification from the additional unit less than from the preceding, and (4) no gratification or even discomfort. Of these four stages, the last, plainly, falls out of reckoning; since no one would intentionally carry the consumption of any commodity into this stage. The second, again, is probably in most cases rather brief. Of the two remaining, the third is seemingly of most importance. With most of us there will be only a few very expensive luxuries which we get in such small amounts that the gratification from an additional unit would be greater than that derived from preceding units. In short, our wants, our capacity to be gratified by the great majority of goods which we purchase or consume, will nearly always be such that additional units will give us gratifications, but gratifications smaller than those derived from units just preceding.

The above discussion shows that our capacity for being gratified by additional units of a commodity, varies inversely as the amount of the commodity possessed or consumed. But this is only another way of saying that the additional units of the commodity *vary in* their capacity to satisfy our wants,

their utility, inversely as the amount possessed or consumed. In effect, then, a unit of a commodity has no utility for us unless our wants demand its use; it has utility just in the degree that our wants demand its use; and, most important of all, taking almost any commodity which we are likely to purchase or consume, the utility of new units successively added to our stock will constantly decline, because the wants to which they are applied approach satiation.

Again, in view of the use already made of the term "marginal," it is plain that the last unit added to our stock of any commodity, the one gratifying the least important want, would naturally be designated the marginal unit and the utility of this last unit would naturally be designated the **marginal utility** of the commodity. Using these names, then, in stating the facts already brought out, we may formulate the following principle:

Principle. The Law of Diminishing Marginal Utility

Broadly speaking, the marginal utility of any commodity will vary inversely as the quantity of that commodity in possession.

Let us now turn back on our course, and, with this law of diminishing marginal utility in mind, give a fuller meaning to the remarks already made with reference to normal demand schedules. The proposition which started us on our discussion of utility told us that the significance or importance of anything is determined by, varies with, its utility. It follows that, if, taking a divisible commodity like the food of our experiment, we give to the significance of the unit last added the name **"marginal significance"** (as we gave to the utility of the unit last added the name "marginal utility"), we may formulate a law of marginal significance exactly analogous to the law of marginal utility set forth above.

Principle. The Law of Diminishing Marginal Significance

Broadly speaking, the marginal significance of any commodity varies inversely as the quantity of that commodity in possession.

Finally, it was remarked at the outset of this discussion that the several demand prices are expressions of the marginal significance to buyers, of the quantity of the commodity demanded at the prices named. It follows that whatever we have said about marginal utility and marginal significance may also be said of marginal demand prices.

The marginal demand price must decline as the quantity bought increases.

This proposition is obviously nothing more than the converse of the principle of Inverse Elasticity for demand schedules which was brought out in chapter XIV. Further, this principle of diminishing marginal demand price *explains why there is* a principle of inverse elasticity. The quantity bought must decline as price rises; for, since the marginal demand price varies inversely as the quantity bought, only a smaller quantity can have the higher marginal demand price assumed. In like manner, the quantity demanded must increase with a lower price, for only a larger quantity can have a demand price as low as the new one assumed.

One more point, though obvious enough, will have such usefulness to us in a later chapter that it calls for special mention. We have seen that demand prices are what they are because significance and utility are what they are; and hence, whatever may be affirmed of demand prices may also be affirmed of significance or utility. Now the fact we wish to emphasize here is that the converse of these propositions is, of course, equally true. Whatever may be affirmed of demand prices may also be affirmed of significance or utility. Hence if in a later chapter we find that a given demand price has a certain effect upon normal price, we shall be able to say that the utility or significance corresponding to that demand price has the same effect.

I will now close this discussion of normal demand schedules with a statement regarding *their general character. Generally speaking, all normal demand schedules are of the kind which in the chapters on Immediate Price-Determination were characterized as typical.* Doubtless this must be affirmed less roundly of some than of others. A few are relatively inelastic, for example, those of the prime necessaries of life; but, over a wide range of prices all these schedules show fairly uniform changes in demand with every material change in price. This fact, as we may easily see, is quite inevitable. (1) General schedules are composites of numberless individual schedules. (2) The tastes and wants of individuals differ greatly. (3) Most of all, the incomes of individuals are very unequal. As a result, there will be some effective demand at almost every price level. Even at very high levels, those who are rich and wish a commodity intensely will continue to demand it; while, with each fall in price, some persons who care less or have smaller incomes or who fulfill both these conditions will come in with a new demand. The general schedule, as a whole, therefore, will show a high degree of continuity, regularity, and symmetry.

We may now summarize the contents of this chapter in the following propositions: (1) the marginal demand price of the individual schedule for a given quantity of any commodity is an expression of the marginal significance as estimated by himself of that quantity of said commodity. (2) The marginal significance of that quantity of said commodity, in turn, is determined by its marginal utility as estimated by the individual concerned. (3) The marginal utility of any commodity, and hence its marginal significance and its marginal demand price, vary inversely as the quantity bought. (4) Whatever principle may properly be affirmed with respect to the influence of demand prices on actual price can properly be affirmed also of significance or utility. (5) General demand schedules are highly elastic, and therefore of the kind called typical.

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ILLUSTRATIVE PROBLEMS.

1. "All talk about normal price is simply silly. There isn't any such thing. The economist teaches that normal price corresponds to cost of production; whereas every one knows that, during the last two or three years, (written in 1918), the prices of almost all commodities have been far above cost of production."

Is his reason for denying the existence of normal price valid? Explain.

2. One of the possible upper limits of the actual price of any commodity is its marginal utility or significance; while one of the possible lower limits of that price is the first extra-marginal utility or signficance of said commodity.

Give the argument needed to support those propositions.

CHAPTER XVII

NORMAL SUPPLY SCHEDULES

In the preceding chapter we considered various topics preliminary to the study of normal price, including normal demand schedules. In this chapter we continue the study of preliminaries, especially matters connected with supply.

The supply schedule with which we were concerned in our first study of the processes of price-determination is most naturally designated the *market* supply schedule. In that schedule we are looking at the *immediate* attitude of sellers. At a certain time, for a great variety of reasons, sellers are ready to sell a certain number of units of a commodity if price is so and so, another number if price is something else, and so on. This attitude of sellers is a momentary one,—an ever-changing one. If they hear a little different news as to conditions in other markets, the probabilities of demand in some other community, or the success of production during the current season, they will alter their supply schedule, will change the quantity they are willing to sell at any particular price.

We wish now on the other hand to study the attitude of sellers throughout a longer period. During a season, a year, or a series of years, sellers are acted upon by certain larger and more permanent forces, and under the influence of those forces, they stand ready to sell a particular number of units of a commodity if price is so and so, another number if price is something else, and so on. This attitude of sellers is represented in the normal or long-time supply schedules. As a final preliminary to our study of actual normal price and its determination, we must now investigate the nature of these normal supply schedules.

Section A. The Cost of Production

In taking up the study of supply schedules, our first task, as it was in the study of demand schedules, is to acquaint ourselves with the deeper elements which lie behind them. Now for the majority of producible goods, the most significant of the elements determining the supply schedule is *cost of production.* We begin, then, with a brief discussion of this topic.

For our present purposes it is necessary to distinguish two kinds of costs: (1) real or *disutility* costs, meaning the personal, psychic discomforts necessarily accompanying some productive acts, for example, the weariness resulting from labor, and (2) *opportunity* costs, meaning the *other* economic advantages foregone because we decide to devote our productive resources to supplying the *particular economic good in question.* Now the bearing of these costs ultimately rests, in a very important sense on *one agent in production*—the entrepreneur—since he is preeminently responsible for the initiation and continuance of any industrial process, purchasing from other agents the services of their factors and uniting them for the production of a common commodity. Accordingly, it is cost as viewed by the entrepreneur which primarily interests us here. From this standpoint, we include under cost everything entering into the productive process *which has a price,* or which will not be furnished unless it is *covered in the selling price of the product.*

The greater part of the entrepreneur's costs are *money* costs or, as they are often called, *expenses.* These comprise the actual money outlay which the entrepreneur is compelled to make in order to get the elements needed in his business. For labor he of course has to pay *wages.* This calls for no comment except in one point that might be overlooked. The term wages must be interpreted to include any sum the entrepreneur allows himself for labor which he might buy but which, in fact, he himself supplies. If he works as manager, or

bookkeeper or clerk, he allows himself a money recompense, and this must properly be reckoned as wages. Secondly, for the use of land, the entrepreneur must make a money payment, called rent. There has been, and continues to be, considerable controversy as to whether, in the final analysis, rent ought to be thought of as a true cost. But, from our present standpoint, there is no room for doubt on the subject. The individual entrepreneur must treat his outlay for the use of land, like any other, as one of the expenses of carrying on the business. Finally, the entrepreneur has to pay for the use of capital a money expense known as *interest*—including not only the sums paid out to others from whom any part of his money capital is borrowed, but also sums credited to himself on any capital which he has himself put into the business. All of these outlays, wages, rent and interest, plainly come under our definition of entrepreneur's costs; for the entrepreneur is compelled to make them before he can produce—and usually before production can be commenced—and accordingly unless something were added to the price of the product to cover them he would lose money and be forced to withdraw from business.

Besides the money costs of production there is the real cost, *risk,* which the entrepreneur himself undergoes in furnishing his own peculiar contribution, Responsibility Taking. The reason this is not represented in the classification just finished, by a money cost, is easily seen. From the very nature of Responsibility Taking it cannot be sold to any one of the four agents: the entrepreneur cannot sell it to himself, because that would be a contradiction in terms; nor can he sell it to the laborer, landlord, or capitalist, because he would thereby become a hired laborer or capitalist, and they, in so far as they paid him for taking responsibility, would really be taking the original responsibility themselves. In short, the entrepreneur's risk remains a real cost, in distinction from the money costs listed above. Risk does, however, easily come under our definition of entrepreneur's costs as some-

thing which has to be covered by an addition to the price of the finished product. While the entrepreneur takes risks, he by no means takes them for nothing; his risk must have an objective expression in some kind of money payment, or he could not be induced to undergo it. So, a sum is added to the price of the finished product to cover risk, and when received by the entrepreneur it is called *profits*.

Besides the four costs thus far enumerated, there is another of rather troublesome complexity. In addition to interest on money capital, the entrepreneur has of course to pay the purchase price of any capital goods—machinery and raw materials,—which he may use in his business. As a matof fact this is not a new cost distinguishable from those already mentioned. A capital good represents in a rough way the real and money costs that went into it in the past, and it is for these that the purchase price is paid; in other words, in addition to current costs, the entrepreneur pays for wages, interest, etc., brought down from the past. However, the price he pays for a capital good has often departed more or less from the price which expressed its real cost, and so we cannot use the latter as an equivalent of its cost in the current productive process. But, anyway, the entrepreneur never thinks of analyzing these goods into their ultimate costs. Their present market value is what concerns him, and since it is entrepreneur's costs of which we are speaking, it is best to conceive them simply as an undistributed element in his money outlay. The total entrepreneur's cost may be summarized in the following tabular form.

ENTREPRENEUR'S COST

I Money Costs
  1. Actual Outlay
  2. Market Value of Purchasable Services of Entrepreneur
II Money Expression of Disutility Cost of Unpurchasable Services of Entrepreneur

It doubtless ought to be added, in concluding this topic, that the cost referred to is supposed to be in all cases the cost to *representative* producers. On the one side, we exclude the cost of a few specially inefficient producers, and on the other side the very low cost of a few specially favored producers. The situation of the former is frequently such that some of his costs do not necessarily have to be covered by an addition to price; the price may be below his cost and he will go on producing anyway, until death or bankruptcy intervenes. The favored producer, again, may, for various reasons, find his costs very much more than covered by additions to the price. Neither of these, therefore, furnishes a proper example of entrepreneur's costs. The cost to be understood in this discussion is the cost to *normal, typical, representative* producers.

Section B. Normal Supply Schedules

With the information set forth above, we may now return to the examination of normal supply schedules. We said that the cost of production was the determining factor behind most of these schedules, and we have now explained that the cost referred to is the entrepreneur's cost, for typical representative producers. Keeping this definition in mind, therefore, let us now observe the cost elements behind the stock or output of different kinds of goods, then observe what determines the amount of the stock or output which will pass into supply at any given price and, finally, note the characteristics of the different kinds of supply schedules thus formed.

1. Fixed-Supply Goods and Their Schedules

The first kind of good is one the stock of which—meaning by stock the total amount in existence—is not affected at all by the cost of production. This is true simply because in the long run, or at least during the period under consideration, no additional units of the good can be produced. One of the most typical of such goods is one which is entirely non-

producible—man *cannot* make it—and which at the same time is practically indestructible—man *cannot* destroy it or, anyhow, acting normally, *will* not. The uses of land will illustrate, or land itself; for within the area of any city there are just so many sites of a particular grade which, broadly speaking, no human action can increase or diminish. Another sort of good answering our description is one produced by persons no longer living, as for example, pictures by Raphael or autographs by Milton. But a producible good may also at times fall into the same class. Thus, when a hat or similar article goes out of style, the amount then in existence will never be increased. A periodically produced good, again, has an unchangeable stock for the interval between two periods of production; thus, the stock of wheat in the world cannot change during the year 1918, because no more wheat can be produced until the year 1919. In a word, it may be said of all these kinds of goods that the stock is what it is and for all time, or for the period under consideration, must remain what it is, unaffected by any cost of production—because production does not take place, production is impossible.

Under these conditions, what will determine the amount of the unchanging stock which will pass into supply at any given price? Observe first that supply, the amount offered for sale, at *some* price must sooner or later include the whole of the stock. If a dealer has ten Rembrandt pictures, or a dozen city lots, or a gross of out-of-style hats, these articles are bound in the course of months or years or centuries to pass into supply. Substantially the whole output of wheat for this season is bound to be disposed of before the next harvest, and so before that time will assume the status of supply—at some price or other. But further, this will be true *no matter what the price*. Under competitive conditions, the owners of the land sites used in the illustration will see to it that all the sites are rented, even if they have to take $1.00 a year. Practically the whole of a wheat crop will be marketed before the ensuing harvest, even if it has to go for $.50 a bushel. Hence,

the thing which determines the supply at *any given price,* as well as at *some* price, is simply the total stock.

With the information now before us we may easily note the chief characteristics of the supply schedules of the kind of goods under consideration. First, strictly speaking, these schedules show no supply prices at all; there are no prices on which the forthcoming of supply is conditioned—supply will be such and such whatever the price. Hence in any formula of price determination where we would ordinarily use the phrase "supply price," we may just as properly use the word "supply." Moreover, since supply includes the total stock, in any formula containing the word "supply" we may substitute the word "stock."

The second characteristic of our schedules is not less easily shown. Supply being equal to stock, and stock being by hypothesis non-increasable, therefore supply is fixed. The good in question is what we call a fixed-supply good. But a fixed-supply good must necessarily have a supply schedule which shows supply remaining constant through all changes in price. To illustrate: Supposing ten to be the total number of land sites of a certain grade, a section of the ultimate supply schedule will run as follows:

Price	Supply
$2,000	10
1,900	10
1,800	10
1,700	10
1,500	10
1,200	10
.900	10

2. Constant-Cost Goods and Their Schedules

The second kind of goods, as classified from the standpoint of the cost of production, is what we call constant-cost goods. These goods are of such a nature that virtually

none at all can be produced below a certain cost; but at that cost the output can vary widely, falling rather low, perhaps, or rising to an amount which, in view of demand conditions, may fairly be called indefinite. Such a description is of course not quite true of any commodity, but it is at least substantially true of many kinds. A manufacturer of wooden chairs, for example, so long as he kept his output above 500,000 and did not attempt to increase it above 5,000,000 might find that the cost of the chairs neither decreased nor increased throughout that range, but remained constant. But since this range is as great as his output is likely ever to traverse, the chair is in effect a constant-cost commodity.

Now, if none of the goods at all can be produced at a cost lower than the one stated, and if an indefinite amount can be produced at that cost, what will determine the amount of supply forthcoming at any given price? We may assume, naturally, that the entire output will be offered at *some* price; producers have no other object in producing than to offer their goods for sale, and accordingly, supply at some price or other will include all their output. Second, producers will offer of their output an indefinitely large amount at a price just equal to the cost of production,—including, remember, a reasonable profit,—for the larger their output the larger will be their profits. Further, no more will be offered at prices higher than cost, since an indefinitely large amount is by the very name declared to be non-increasable. On the other hand, if price were to go below cost of production, producers would lose; and hence at prices below this cost of production, supply will be zero. In short, there will be an indefinite amount offered at prices equal to cost of production, no more at prices above, and none whatever at lower prices. The forthcoming of supply is thus in every case dependent upon a *price equal to the cost of production.*

The foregoing information should enable us now to describe without difficulty the supply schedules of constant-cost

goods. First, as we have plainly implied, the factor or element in the background determining the supply price of the commodity is the cost of producing that commodity. Any particular supply price is what it is because the cost of production is what it is. Accordingly, if we find that the supply price plays an important part in determining actual normal price for goods of this class, we also necessarily find that the cost of production plays this same part. *Whenever, in short, we have a proposition affirming a certain relation between normal price and supply price, we can substitute in such proposition for the phrase "supply price" the other phrase, "cost of production."*

Second, if throughout the supply schedule for constant-cost goods there will be an indefinite amount offered at prices equal to the cost of production, how will the supply prices vary? They will not vary at all. Cost of production, as we have seen, is, within any range which demand is likely to traverse, a constant, unchanging cost. But a supply price equal to an unchanging cost will be an unchanging price. Hence, we say that *the supply schedule for constant-cost goods is a single price supply schedule.*

3. Increasing-Cost Goods and Their Schedules

The third kind of goods, classified from the standpoint of the cost of production, is known as increasing-cost goods. By these we mean goods the marginal cost of which increases as the output is increased: the cost of each additional unit is greater than that of the last unit added before. This class of goods is well represented by silver, copper, wheat, cotton, and many other of our most familiar and important commodities.

The technical consideration that usually determines whether a good will be one of constant-cost or one of increasing-cost is the relative proportions of naturally limited materials necessary for its production. If the cost of a good lies mainly in the manufacturing process or in raw materials which, under ordinary conditions of demand, are practically unlimited,

then the cost per unit of the amount produced will remain constant. Thus the chair of our last illustration is supposed to be made from a wood which is common and abundant, and to be manufactured by simple processes easily and plentifully supplied with machinery and labor. Examination of the steel, or copper, or coal industry, however, reveals quite a different situation. Here a large part, if not the largest part of the cost belongs to the raw materials as they are gotten out of the mines. But the supply obtainable from mines of a uniformly best grade is decidedly limited. Hence, as demand increases, and the need steadily grows for heavier production, resort must be had to inferior mines—mines more and more inferior—and so the cost of production will steadily increase.

Here again, as in the case preceding, we start with the assumption that whatever is produced is produced for supply, and that therefore output and supply—supply at some price—are virtually one. The question of what determines supply, the quantity offered *at any given price,* is then easily answered. Men can produce and will therefore supply an indefinite amount at a price equal to the marginal cost of production, because the larger their output the larger will be their profits. They will supply none at a price below this marginal cost, because if they did they would lose money. Nor, again, will they supply any at a price higher than this marginal cost of production. They would of course be glad to do so, in order to increase their profits; but since they can offer and are willing to offer an indefinite amount at the marginal cost price, competition among them will insure offerings at that price as great as demand can absorb. Evidently, then, if an indefinite amount will be offered at a price equal to the marginal cost of production, none at prices below that, and no more at prices above, the *thing which determines the forthcoming of supply in every case is a price equal to the marginal cost of production.*

Let us now examine the supply schedules of increasing-cost goods. First, since the marginal cost of production is the factor or element behind the scenes which determines the supply price for any particular volume of the commodity; since, in other words, the supply prices of the schedule are merely so many marginal costs:—the schedule itself may be interpreted either as a supply schedule or as an output-cost schedule, that is, a schedule showing just how much of the commodity in question could be produced at a marginal cost equal to each of a series of prices. It follows that, in any formula of price determination containing the phrase "marginal supply price," we can properly substitute the phrase, "marginal cost of production."

Second, if throughout the schedule the amounts offered are all offered at a price equal to the marginal cost of production, then the prices must vary in the same direction as the supply. The marginal cost of production for goods of this class is, as we have seen, one which varies directly as the output or supply, it is an increasing cost. But a supply price equal to an increasing cost will be an increasing supply price. Accordingly, we say that the *supply schedule for an increasing-cost commodity is an increasing-price schedule.*

Still a third feature of the supply schedules of increasing-cost goods should be observed. The schedules are of the kind which we earlier called *typical.* Over a wide range of prices, they show fairly uniform changes in output with every material change in price; in other words, they are highly regular and symmetrical. This is inevitable from the conditions of production. When we consider that the natural factor in production, the land, varies greatly with respect to natural fertility and advantage of situation, and that individuals are of all degrees of efficiency, it is plain that costs of production for goods of this class will be of almost infinite variety. This, of course, will make the supply prices, the prices on which the forthcoming of supply is conditioned, equally diverse.

4. Variable Schedules

In concluding this discussion of supply schedules we should observe the tendency of some goods to shift from one class to another, to have this year one kind of supply schedule and next year a different kind. A good which under ordinary circumstances belongs to the constant-cost class might sometimes be conceived of as running into the increasing-cost or even the fixed-supply class. Thus, in normal times of peace agricultural implements belong to the constant cost class; there is a price below which none will be supplied, and at that same price an amount will be supplied which in view of the then existing condition of demand, may fairly be called indefinite. But suppose a great war commences and demand is suddenly increased far beyond what was formerly considered an indefinite supply. Then, in order to keep pace with the demand, new sources of material for the supply must be resorted to, particularly new mines. But these mines, though furnishing the metal required, are inferior to those formerly worked, and so furnish it at an increasing cost. Hence the implements, the production of which depends upon these mines, can be supplied only at an increasing cost, and they become increasing-cost goods. Further, it should be very easy to see that if demand altogether outran supply, if it became so great as compared to supply that additions to supply were inappreciable, then the goods would cut loose from cost principles altogether, and become virtually a fixed-supply good, or at any rate a good with a fixed-supply schedule.

CHAPTER XVIII

PRINCIPLES GOVERNING THE DETERMINATION OF NORMAL PRICE

In the two preceding chapters we have discussed normal supply schedules, with the costs of production which lie back of them, and normal demand schedules, with the significances to consumers which lie back of them. It is through these normal supply and demand schedules that the normal prices of goods are determined. We are now, therefore, in a position to take up the direct study of those principles which are commonly given as governing normal price.

We shall treat in succession the three classes of goods named in the last chapter—fixed-supply goods, constant-cost goods, and increasing-cost goods. By this process we can handle methodically all problems of normal price determination; for the three classes of goods named have their normal prices determined in three different ways, and those three ways include practically all the ways, and indeed quite all the most important ones, in which normal price can be determined.

Speaking generally, we may say that the goods of one class have their prices determined from *the demand side only* —through the prices of the demand schedule; that goods of the second class have their prices determined from *the supply side only*—through the prices of the supply schedule; and those of the third class have their prices determined by elements *from both demand and supply*—through both the demand and the supply schedules. In section A, following, we begin with that class the prices of which are determined from the demand side only.

Section A. Normal Price of Fixed-Supply Goods

We will take as an example of fixed-supply goods copies of the Basel edition of Sir Thomas More's Utopia. Suppose that, at about the same time in the year 1925, three or four finds are made, bringing on the market a new supply of these books amounting to ten copies. Suppose, further, that the demands of libraries and private collectors are such that the aggregate demand schedule is as follows: 1 copy wanted, if price is $200; 2 copies, if price is $175; 4 copies, if $160; 6 copies, if $125; 10 if $100; 11, if $90; 14, if $75; and so on. Under these conditions, what must the price tend to be, and what principles will regulate that price? The accompanying demand and supply schedule shows that the price could not be above $100; for, if it went above this figure, 4 buyers would withdraw, making demand deficient, and, in order to guard against this result, the sellers would bring price down to $100. On the other hand, price could not go down to $90; since, if it did, one new buyer would come in, making demand excessive, a result which $100-buyers would have to guard against by bidding price up to at least $91. Actual price, then, must tend to be some price between $91 and $100, inclusive.

Demand	*Price dollars*	*Stock*
1	200	10
2	175	10
4	150	10
6	125	10
10	100	10
11	90	10
14	75	10
16	60	10
20	50	10

The first and most obvious comment on this case is that our familiar law of supply and demand is still operative. A price must be reached at which demand and supply are equal. If demand and supply were not quite equal at one of the prices given in the schedule, the necessary equating would be effected in practice by compromise prices between those giv-

en. Equality of demand and supply would be reached at $95 or $94 or $97 or at some other figure between $90 and $100. Further, it is manifest that the law of supply and demand is regulating not merely market price but *normal* price also. The market price, under this law would in successive hours or days or weeks probably run both above and below $100, perhaps mostly above. But under the same law, as a final resultant, a normal price of $100 would be affirming itself.

We have noted that, in this case of fixed-supply goods, the law of supply and demand is still operative and is determining normal price. It may be worth while to add that the law may here be affirmed in a somewhat special sense. Since supply is, by hypothesis, constant and so demand must do all the changing; and since supply is in the long run identical with stock, we are justified in restating the principle as follows: *In the case of fixed-supply goods, the normal price must tend to be that price or some one of that series of prices which will cause demand to become equal with the unchanging supply. Or, more briefly, the normal price must tend to be that one or some one of that series which will equate demand to stock.*

The natural procedure, in seeking a deeper knowledge of the processes by which normal price is determined, is to note first the relations between the price which is necessary to equate supply and demand and the prices which we learned in Chapter XIV to designate supply prices and demand prices. Among those prices, we will remember, the immediately effective ones in the regulation of price through supply and demand were the marginal demand price and the first extra-marginal supply price for the upper limit of price and the marginal supply price and the first extra-marginal demand price for the lower limit. Are all of these operative in the case of fixed-supply goods: and if not, which

ones are? The answer is quickly given: only the demand price limits are operative.

As we saw in our first analysis of the Utopia example, at least one reason why normal price could not be above $100 is that, unless price is as low as $100, the last increment of demand will not appear at all, and sellers, therefore, will be obliged to bid actual price down to $100 to insure disposal of the stock. That one of the two variables fixing the upper limit of price which comes from demand, the marginal demand price, is thus actually operative. But the other variable fixing this limit, the one which comes from supply, is *not* operative. Sellers are not compelled to bid price down in order to prevent the appearance of a new supply; for there is no new supply to appear—supply is constant. In other words, the first extra-marginal supply price has no share in fixing the upper limit of actual price. That limit is fixed by the marginal demand price only.

Turning, now, to the lower limit of price for this same commodity, it is evident that actual price could not go down to $90 because this would make demand increase by one copy, thus compelling buyers to bid price up to some higher figure in order to exclude this increment of demand. But, on the other hand, buyers do not have to hold price up in order to keep in the marginal supply; for, by hypothesis, supply is constant and therefore will not fall with a declining price. In short, that one of the variables fixing the lower limit of price which comes from demand—the first extra marginal demand price—is the only one actually operative. From this analysis, it follows that, *in the case of fixed-supply goods, the normal price must be one of the prices ranging from a limit fixed by the marginal demand price, and that only, down to a limit fixed by the first extra-marginal demand price, and that only.*

The above formula confines itself to defining the limits within which normal price must tend to fall. But, as already noted, actual demand schedules for most commodities are

continuous,—show changes in the volume of demand for practically every change in price. In consequence, the marginal and the first extra-marginal demand prices will be in such close juxtaposition that actual price cannot go below the marginal demand price at all without reaching the first extra-marginal demand price. In practice, then, it will usually be sufficient to define normal price by one of these limiting moments, the marginal demand price. Hence the following formula.

Principle. *Generally speaking, the normal price of a fixed-supply commodity must tend to coincide with its marginal demand price.*

The formula just given makes the marginal demand price the decisive factor in determining the normal price of fixed-supply goods. But as was explained in Chapter XVI, the marginal demand price must usually be an expression of the marginal significance to the marginal buyer, as estimated by himself, of the quantity of a commodity he proposes to buy; and this, in turn, must be determined by his estimate of the marginal *utility* he expects to derive from that quantity of the commodity. Further, the marginal significance or utility to the marginal buyer is the *general* marginal significance or simply the marginal significance. And, finally, in any formula containing the phrase "marginal demand price," we can substitute the phrase "marginal significance" or the phrase "marginal utility." Hence the following formula.

The Marginal Significance or Utility Principle

Generally speaking, the normal price of a fixed-supply commodity must tend to be that price which expresses the marginal significance or utility of the existing stock of said commodity.

Illustrative Problems

1. During the current year, there came on the market from various sources twelve specimens of a certain rare object. If the ultimate demand schedule proves to be as follows: 1 wanted at $60; 2 more at $55; 4 more at $50; 5 more at $45; 6 more at $40; *etc.*, what price will in the long run tend to be reached? Prove.

2. In a certain year the output of wheat proved to be 2,000 millions of bushels. The ultimate demand schedule for the year ensuing till the next harvest was as follows: 1,600 mil. bu. wanted if price were $1.30; 1,800 mil. if price were $1.25; 2,000 mil. if $1.20; 2,200 mil. if $1.15; and so on.

(a) What price would tend to prevail for that year? Prove in detail.

(b) What would determine it?

(c) What price would tend to prevail, if the demand moved up a step, making the schedule 1,800 mil. at $1.30; 2,000 mil. at $1.25; 2,200 at $1.20; 2,400 at $1.15; and so on?

(d) What price if demand moved up two steps, making the schedule: 2,000 mil. at $1.30; 2,200 at $1.25; and so on?

(e) What price if demand moved down two steps, making the schedule: 1,200 mil. wanted at $1.30; 1,400 mil. at $1.25; 1,600 at $1.20; 1,800 at $1.15; 2,000 at $1.10; and so on?

3. "In 1348-49 the black death carried off from one-third to one-half of England's workingmen. In consequence wages greatly advanced."

(a) Explain the advance in wages on the basis of the Law of Supply and Demand given on page 244, constructing for the purpose imaginary demand and supply schedules.

(b) Explain the advance in wages on the basis of the Marginal Significance principle given above.

(c) Discuss this statement: "Wages rose because the demand for the laborers who were left had greatly increased."

Section B. Normal Price of Constant-Cost Goods

In sharp contrast with the class of goods just considered, fixed-supply goods, are the constant-cost goods with which we now deal. The former had no supply price, or perhaps better, their supply price was *indeterminate*. Constant-cost goods, on the other hand, have just *one* supply price. Within the limits of the demand likely to develop, an indefinitely large supply will be forthcoming at that one price, while none will be forthcoming at any lower price.

Under this condition, the principle governing normal price is readily derived. As we found in Chapter XIV, the limits of price variation may be fixed by two prices from the demand side, by two prices from the supply side, or by a combination of these. Now, in the present case, the two limiting prices on the side of supply—the marginal and first extra-marginal, coincide. That price is necessary to the forthcoming of *any* supply, and it will also bring out a quantity which, in view of the volume of demand, is indefinitely great. The other moments which might fix the limits of price variation, marginal and first extra-marginal demand prices, may therefore be ignored. These other limits may coincide with those fixed by the supply price. But, even if they do not, even if they vary indefinitely, they will not tend to alter an actual price which is anchored to a single supply price. A qualification of this statement may seem necessary, from the fact that there *must* be some demand at a price as high as the single supply price; or, to put it the other way, actual price could never be higher than the marginal demand price. But this simply means that, if the marginal demand price were not as high as the single supply price, the commodity would not be produced at all, and hence no problem of its price determination would arise. It is sufficient, then, to say that the normal price of such a commodity must tend to coincide with the single supply price without respect to demand prices.*

* With the single qualification just noted.

The principle just brought out, the exclusive dependence of constant-cost goods on the supply price, is so important that it seems best to give it the benefit of ample illustration. We will take for the purpose, a wooden chair. This commodity is a constant-cost good at the single price of 30 cents so long as demand is not less than 500,000 and not greater than 2,000,000. The accompanying table shows the supply schedule for this range of demand, and various possible demand schedules. Since producers who are ready to supply anything between the amounts named at 30 cents will of course be willing to do the same at any higher price, we give 500,000-2,000,000 for every price from 30 cents up. Below that price demand is each time zero.

Combining the supply schedule S with demand schedule A, it is plain that price must tend to be just 30 cents. Price could not be higher than this; since sellers, being ready to supply much more than the total amount demanded at 30 cents, will bid down to that figure in order to get as much of the market as possible. On the other hand, since there is no supply forthcoming at prices below 30 cents, buyers will bid price up to that figure to insure getting what they want. Exactly similar reasoning would show that the price must necessarily tend to be just 30 cents with demand schedule B or C or D or, in fact, with any one we could imagine which made demand at 30 cents more than 500,000 and less than 2,000,000.

But not only will price be 30 cents, the single supply price, it will rest at that point *uninfluenced by demand prices.** The most clearly decisive proof of this assertion is to be found in the fact that the same price would be reached if our demand schedule were so altered as to put the demand prices which might influence the matter *quite outside the price bound to prevail.* Thus, let us suppose the Schedule D to be so changed that from 50 cents to 15 cents there is no change in the vol-

* Remember, however, the qualification already noted.

ume of demand. Now, under this schedule as under the others, normal price must tend to rest at 30 cents; buyers will hold it up to this point; sellers will hold it down to this point. But with a normal price of 30 cents, the marginal demand price for schedule D would have to be 50 cents, since that price is low enough to bring in the whole demand actually satisfied; while the first extra-marginal demand price would have to be 15 cents, since no addition to demand takes place till this price is reached. But neither of these prices influences a price set at 30 cents. A marginal demand price of 50 cents would permit actual price to rise to 50 cents; while a first extra-marginal demand price of 15 cents would permit actual price to fall as low as 20 cents. But, in fact, actual price cannot rise above 30 cents, nor fall below 30 cents. Its position, therefore, is uninfluenced by the demand prices.

SUPPLY	PRICE	DEMAND 000				
Sch. S 000	Dollars	Sch. A	Sch. B	Sch. C	Sch. D	Sch. E
500-2000	3	2	3	3	5	5
500-2000	2	10	12	15	20	20
500-2000	1	50	51	60	80	80
500-2000	.75	300	500	810	1100	1100
500-2000	.50	500	750	1020	1400	1400
500-2000	.40	600	895	1200	1520	1400
500-2000	.30	700	950	1540	1840	1400
0	.25	1000	1210	2000	2560	1400
0	.20	1500	1800	2560	2800	1400
0	.15	2500	3000	3800	4563	2000

We are now in a position to observe the final results of our study of constant-cost goods. These goods, we have just shown, must tend to have a price coincident with their single supply price, uninfluenced by their demand prices. But that single supply price, as we learned in the chapter on sup-

ply schedules, *is the cost of production* to the representative producer; and demand prices, as we learned in the chapter on demand schedules, are expressions of the marginal significance or utility of the commodity to marginal consumers. Making the substitution of terms, therefore, we may say that the price of a constant-cost commodity tends to coincide with its cost to representative producers, uninfluenced by the significance or utility of the commodity to consumers.*

The result of the preceding discussion has been to set up cost of production as the determinant of the normal price of constant-cost goods. However, a word of caution is here necessary. The power of cost to determine price is derived from its power to influence the forthcoming of supply. Its influence, therefore, is exercised through the future rather than the past. It is not because the existing product had a cost that price has to equal cost, but *because the future output will have a cost.* From this fact it results that unless there is call for future production, cost can have no influence on price. If, for example, a change in fashion makes the existing stock of a particular style of shoe in excess of any possible demand at a price as high as cost, there will obviously be no need for further production, and so cost will have no influence on the price. Such a commodity will, as seen in our classification of commodities, pass into the class of fixed-supply goods. Its price will then become purely a matter of demand prices and, therefore, of the forces lying behind those prices, namely, significance or utility. To insure our recognition of this point, our principle will explicitly state that the continued production of the commodity in question must be called for.

Another caution is suggested by the consideration on which the last was based,—that cost of production acts only through its relation to future product. Cost of production may change, rise or fall; and, after every change, it will be the *new*

* Remember the qualification.

cost which must determine price. To anticipate this difficulty, some writers have argued that we ought to say "price must equal cost of *re*production." To this, however, the answer of Cairnes is perhaps sufficient: all scientific principles assume constancy of conditions; the cost which is decisive at any period is the cost of that period, conditions supposed to be unchanged. But, if any one prefers, there is no serious objection to saying cost of reproduction.

The principle brought out in this discussion may now be formulated as follows:

Principle. *The normal price of constant-cost goods, the continued production of which is demanded, must approximately equal their cost to representative producers.*

Illustrative Problems

1. From a cement factory promoter in 1901: "We can easily satisfy any fair-minded person that our proposition is a veritable gold mine. Cement can be put on the market by a well-equipped mill at a cost of about $1.75 a barrel, while it is selling for $4, thus giving a profit of over 100 per cent. With the supply of raw material practically unlimited, our mill will soon be turning out 600,000 barrels per year, and our annual profits will be nearly $1,500,000. You can't afford to stay out."

Supposing the facts to be as stated, what economic law was overlooked in drawing conclusions?

2. "Labor once spent has no influence on the future value of any article."

(a) Show that this is true as applied to the wooden chair which was used in working out our principle.

(b) Does the above statement, admitting it to be true, invalidate our principle?

3. At a certain time the price of whiskey in this country was about fifty cents, the cost of producing it. The United States government thereupon levied on each gallon produced a tax of one dollar. What naturally happened to the price of whiskey? Why?

4. "Let us suppose that five or six concerns are supplying the building brick used in a certain district, and that by a new method of manufacture they manage to double their output for the former expenses of labor. What will happen as regards the price of brick? From our knowledge of what competition usually does, we are apt to say: the price of brick will fall 50 per cent. This may be the final result, but not necessarily so. * * * Manufacturers in normal times will increase their production of brick. * * * To take off the extra supply of brick they must find a wider circle of demand. * * * * It may, however, happen—not in the case of brick probably, but in large articles of limited consumption—that *there is no such circle of demand at lower levels;* then what will happen is that the manufacturers will cut down their output to the same quantity of brick as before, and maintain the former high price. * * * It is contrary to all experience to think that employers will voluntarily raise wages or pay higher interest—because costs have decreased. They only do so under compulsion of fear that their rivals will cut the feet from under them. Where competition is active it will often seem as though reduction of costs were almost immediately followed by fall in prices of products, but, in the last resort—and that is what concerns us in seeking for a universal law of value—*the new prices are determined by the lower and wider levels of want which are ready to take up increased supply of the majority of ordinary commodities.*"

The above quotation is taken from the writings of an able economist. It has been modified at a few points to eliminate ambiguities. I think, however, that it does not misrepresent his views. In any case, it brings out a way of looking at the matter which the student should be familiar with.

(a) State clearly what is the precise point which the author seems to be trying to make.

(b) Show that it is unsound.

5. A certain residence in Ann Arbor is taxed each year, let us say, $42, of which sum $12 is properly chargeable to the land while the remaining $30 is chargeable to the house. Under the operation of the two principles of normal price which we have now had, the $30 will really be paid by the tenant,

being shifted from the landlord to him, while the $12 will not be shifted and so, as far as the future is concerned, will remain on the landlord.

Explain how it is that things come out this way.

Section C. Normal Price of Increasing-Cost Goods

Fixed-supply goods, we have found, have their prices determined by *demand forces only*. Constant-cost goods, on the other hand, have their prices determined by *supply forces only*. But in the case of increasing-cost goods with which we now deal, *forces from both sides* participate. This grows out of the fact that the supply schedule is of the sort called typical in our first account of these schedules. Since, by definition, the cost of these products increases as the output increases, their supply schedule will show a change in supply for every change in the supply price. But general demand schedules, as explained in Chapter XIV, are practically always of the typical sort, showing change in the volume of demand with every change in price. Hence our present case is one wherein both schedules are of the regular type. In consequence, any price which does not equalize demand and supply sets up a reaction tending to displace that price on both the demand side and the supply side; and these reactions influence the determination of the point where price finally rests, whether they come from the side of demand or that of supply. Normal price, then, for increasing cost goods is determined by both demand and supply forces.

Perhaps the best way to confirm this reasoning is to show by illustration (1) that every variation in either the demand schedule or the supply schedule would cause a change in price, and (2) that the determination of the new price would have been influenced, not by the changing element only, but also by the one which remained constant. The first point may be seen by a moment's study of the accompanying table, which gives three different schedules of the typical sort on each side.

Whichever ones we combine at the outset (not including D‴ or S″) if we keep the supply schedule constant and unite with it a different one of the demand schedules, a new price necessarily emerges. A precisely similar result is reached if any one of the demand schedules is kept constant and a different supply schedule combined with it.

Demand, 000,000 oz				Price cents	Supply, 000,000 oz			
Sch.D‴	Sch.D″	Sch.D′	Sch.D		Sch.S	Sch.S′	Sch.S″	Sch.S‴
230	190	230	210	60	310	330	290	290
240	200	240	220	59	300	320	280	280
250	210	250	230	58	290	310	270	270
260	220	260	240	57	280	300	260	260
260	230	270	250	56	270	290	250	260
260	240	280	260	55	260	280	240	260
260	250	290	270	54	250	270	230	260
260	260	300	280	53	240	260	220	260
270	270	310	290	52	230	250	210	250
280	280	320	300	51	220	240	200	240
290	290	330	310	50	210	230	190	230

The second point is not so easily seen, but is no less certain. When a new price is fixed by the use of a new demand (or supply) schedule, that price after all is not made what it is simply by this new demand (or supply) schedule: it is also influenced by the schedule which was kept constant. To illustrate, let us start with two combinations both of which give a price of 55 cents, namely, demand schedule D with supply schedule S, and the same demand schedule with supply schedule S‴, a schedule which shows supply unchanging from 53 cents to 57. Let us now substitute demand schedule D′ in the two combinations successively and note the different results. The first experiment, putting D′ with S, causes price to advance one cent, from 55 to 56. The second

experiment, putting D′ with S‴ makes price advance two cents, from 55 to 57. The obvious reason is that in the latter case unchanging supply left to demand alone the equalizing of demand and supply and so price had to advance two full steps; while, in the former case, increasing supply made possible the equalizing of demand and supply one cent earlier, and so stopped the rise of price at one step.

We have seen that the normal price of increasing-cost goods must tend to be one which is influenced by the forces of both demand and supply and so by all four of those moments which fix the limits of price variation, namely, the marginal and first extra-marginal demand prices and the marginal and first extra-marginal supply prices. But in chapters XVI and XVII we learned that the demand prices are expressions of the significance or utilities of the several amounts of the product in question, while the supply prices are the different marginal costs of production. Hence in the above statement we may substitute for the phrases "demand prices" and "supply prices" the words "significance" and "cost." In short, the prices of increasing-cost goods are determined by both significance or utility and cost. More precisely the price of an increasing-cost good must not go above that price which expresses its marginal significance nor up to one which equals its first extra-marginal cost, and must not go below its marginal cost nor down to a price which expresses its first extra-marginal significance or utility.

If we assume for the sake of convenience that both the demand and supply schedules are perfectly typical and regular, it follows that the two upper limits would coincide, and the same would be true of the two lower. It would then leave our formula still adequate if we were to omit the limit fixed by extra-marginal significance or cost and say: "The price of an increasing cost product must be one which approximately expresses its marginal significance or utility and equals its marginal cost."

Before finally accepting this formula, however, it seems desirable to make some comments in the nature of cautions. First, in order to anticipate an objectionable interpretation which some have made, it is perhaps best to insert the word "normal" before marginal cost. The marginal cost is *the greatest* cost at which production is being carried on, and this, taken literally, would mean the cost to producers who are quite behind the times in methods and facilities and are perhaps losing money but have no other alternative than going on until they become completely bankrupt. But such persons are not marginal producers in any proper sense. They are wholly abnormal elements, having little or no significance in the case. Since by hypothesis they do not quit production when it becomes unprofitable, their cost is not a determining factor in respect to price. The cost which does determine price is the *normal* marginal cost, or the cost to normal marginal producers.

Another point calling for a moment's attention is the following: If either or both of the schedules considered are discontinuous, price will not necessarily coincide exactly with either marginal significance or marginal cost. But it will be in so far fixed by both of these that, on the one hand, it must not go above the marginal significance nor down to the first extra-marginal significance; while, on the other hand, it must not go below the marginal cost nor up to the first extra-marginal cost.

Finally, it is of course always possible to argue that, in making up a formula, either one of the determinants might be chosen and the other one omitted, on the ground that *either implies the other*. But if we affirm the relation of price to either factor, making no mention of the other, there is danger that we shall be understood to mean that the one we do mention is alone responsible for the price, to the entire exclusion of the other. So, in the opinion of the writer, it is unsafe to carry the ellipsis further than we do in the formula now to be stated.

Principle. *The normal price of increasing cost goods, the continued production of which is demanded, tends to be a price which both expresses the marginal significance of the output and equals its normal marginal cost.*

Illustrative Problems

1. Suppose that the production schedule of silver reads as follows: at a marginal cost of 55 cents, 170 millions ounces can be furnished; at a marginal cost of 56 cents, 175 millions ounces; at 57 cents, 180 millions; at 58 cents, 185 millions; at 59 cents, 190 millions; at 60 cents, 195 millions; at 61 cents, 200 millions; at 62 cents, 205 millions; at 63 cents, 210 millions; etc. Suppose, secondly, that the demand schedule is as follows: 160 millions ounces wanted, if price is 65 cents; 165 millions, if price is 64 cents; 170 millions, at 63 cents; 175 millions, at 62 cents; 180 millions, at 61 cents; 185 millions, at 60 cents; 190 millions, at 59 cents; 195 millions, at 58 cents; 200 millions, at 57 cents; etc.

(a) Make out a table giving the ultimate demand and supply schedules.

(b) What must price tend to be? Prove.

(c) What will it tend to be if demand moves up two steps, becoming: 170 millions wanted if price is 65 cents; 175 millions if price is 64 cents; and so on. Prove.

(d) What determines price in these two cases?

2. "At the present time (1896) silver is being produced at a marginal cost of approximately 65 cents per ounce. But the price of silver is in the long run determined by its marginal cost. Hence it is ridiculous to expect that the adoption of free coinage by the United States will raise the price of silver, as measured in gold, to $1.29 per ounce, or any other figure above 65 cents."

Admitting that the normal price of silver must in the long run coincide with marginal cost, still the above conclusion is unsound. Explain.

3. Suppose the production schedule in Problem 1 to be changed so as to read as follows: at a marginal cost of 55 cents, 175 millions ounces can be furnished; between 55 cents

and 59 cents no change is possible; at a marginal cost of 59 cents, 500 millions ounces can be furnished; at 60 cents, 525 millions ounces; and so on.

(a) What would price tend to be when the demand schedule was the same in Problem 1 (a)? Prove.

(b) What would price tend to be if the demand schedule were moved up as in Problem 1 (c)? Prove.

(c) What would price tend to be if the demand schedule were moved up two more steps so as to begin: 180 mil. oz. wanted at 65c.? Prove.

(d) What is the point to be made?

4. The author of a recent text-book in Economics expresses himself on the relation of cost to price in this vein: In the case of reproducible goods, "cost of production seems of commanding importance." "In fact, however, marginal efficiency (utility) is the real determinant of price," "cost of production adjusts itself to this." "There is an abundance of silver below the surface that is not mined because it will not pay; if the marginal efficiency or value of silver should rise, these more expensive grades would at once be marketed and the new marginal cost of production would adjust itself to the price."

(a) Construct a sentence running parallel to the last one quoted, but exactly reversing the roles of marginal utility and marginal cost, whereby it would seem to be proved that marginal cost really determines price while marginal utility merely adjusts itself to price. The sentence should start out something like this: "Generally speaking, it would seem as if marginal utility chiefly regulated price. In fact, however, marginal cost is the real determinant; marginal utility adjusts itself to this. Below the present demand for silver there are numerous layers of demand which are now merely potential because the corresponding utilities are below the present market price; if, now, the marginal cost of producing silver should fall, and so the price should fall, these lower layers of demand, etc. * * *"

(b) Show that both the original quotation and our substitute are inadequate.

CHAPTER XIX

SPECIAL CASES OF NORMAL PRICE

The general principles governing normal price have been brought out in the preceding chapter. But there are some cases of a rather unusual character which call for special treatment. Some, on account of peculiar complications, are not provided for at all in the foregoing principles. Others could be fairly covered by a careful interpretation of those principles; but, because of certain peculiarities, further explanation is needed to guard against misunderstanding. In still other cases, there is reason for attempting a special statement, because, although the principles already laid down quite plainly apply to them, it is possible for various reasons to go deeper, to find some more ultimate statement of the process whereby price is determined.

1. Rare Products

A very interesting special case is that of produced goods which are so limited in possible amount that they behave almost like non-producible goods. We think of them as rare products. Notable examples are the very rare metals, such as radium, iridium, even platinum. We should probably have to count in the same class various vegetable products, special brands of tea, tobacco, or wines.

As already indicated, the distinguishing mark of this class of goods is the fact that the total possible output is extremely restricted as compared with the demands at very high prices. In consequence, increases in output through increased expenditure, though they can be made, are practically negligible. Goods of this sort give us a production or supply schedule which looks something like a regular increasing-cost schedule. In fact, however, the extreme smallness of increase in

output with rise in price differentiates these from the typical cases such as we had in silver. The accompanying schedule, an imaginary one for a very rare brand of tea, may be taken

Demand 000 pounds			Price dollars	Supply 000 pounds	
D″	D′	D		S	S′
1	6	3	500	11.683888	40
2	8	5	450	11.683885	25
3	10	6	400	11.68388	18
5	12	8	350	11.68387	15
6	13	10	300	11.68385	13
8	15	12	250	11.6838	12
10	18	13	200	11.6835	10
12	25	15	150	11.683	8
13	40	18	100	11.682	6
15	60	25	50	11.680	5
18	100	40	24	11.675	3
25	120	60	10	11.650	2
40	160	100	5	11.600	1
60	180	120	4.	11.500	
100	200	160	3.	11.350	
120	500	180	2.50	11.100	
160	700	200	2.	10.800	
180	1,500	500	1.75	10.500	
200	3,000	700	1.50	9,900	
500	10,000	1,500	1.25	9.	
700	15,000	3,000	1.	7.7	
1,500	20,000	10,000	.75	6.	
3,000	30,000	15,000	.50	4.	

as representative. Every considerable increase in output takes place while cost is still quite low, and after that cost has passed $25, the additions are all in pounds and even fractions

of a pound. If this supply schedule be combined with the demand schedule marked D, a price of $250 per pound results, and this price is really determined in just the same way it would be if the possible output for each year were absolutely fixed at 11,000 pounds,—by the marginal significance. The fact that the output can be increased beyond 11,000 pounds, and the further fact that in the end the price actually coincides with the marginal cost of production, have really nothing to do with fixing the price at $250. Marginal significance alone is effective.

This contention is most plainly established by noting the effect of raising or lowering the demand schedule and seeing how the results differ from what they would be if we had a typical case of increasing-cost goods. Thus, when demand schedule D′, representing demand as having advanced two steps all along the line, is combined with the supply schedule, price also advances *two steps,* from $250 to $350. So demand schedule D″, which represents one resulting from a decline of two steps in demand, causes the price also to drop *two steps,* from $250 to $150. If now our supply schedule had been a typical one wherein supply appreciably increased as the marginal expenditure increased,—represented in schedule S′, the result would have been quite different. Our original demand schedule D combined with this new supply schedule would have given us, as before, a price of $250. But the change to D′ would have caused an advance in price, not of two steps, but only of one, from $250 to $300. So, combining D″ with the new supply schedule would have caused a drop in price, not of two steps, but only one, from $250 to $200.

The reason is plain. In the latter case, the *substantial increase* in output as price rose under schedule D′ brought supply and demand together at an earlier price; while the *substantial falling off* in output, as price fell under schedule D″ brought supply and demand to equality at the earlier point. With the original supply schedule, both of these conditions were lacking. The increase as price rose was negligible, the

decrease as price fell was negligible. The new prices, therefore, were fixed without respect to supply or cost. We have in effect here a fixed-supply or fixed-output commodity, the price of which is determined by marginal significance alone.

2. Joint-Cost Products

In studying not a few producible goods, we strike a complication due to the fact that *several different commodities emerge from the same productive process.* Thus, the dairyman simultaneously and by undivided and undistinguished productive efforts brings into existence milk, butter, cheese, beef, and hides. The refining of petroleum yields not only common illuminating oil, kerosene, but also vaseline, gasolene, and naphtha. Again, the coal tar resulting from the distillation of coal for the making of gas gives us a whole line of by-products, including various drugs, perfumes, and a large number of dyes. Now, in cases like these it is difficult, if not impossible, to isolate the share in the cost of production which is properly chargeable to each of the several products. This being true, we surely cannot apply to these goods, without qualification, the principle laid down for other producible goods.

The special theory needed here was set forth by Mill. It is that the price of each of the individual products must be such as to equalize supply and demand for that product; while the money value of the whole group of products must equal their cost of production. In consistency with the modern analysis which goes behind demand to significance or utility, we should change the first part of this formula to read "the price of each of the individual products must tend to be that price which expresses the marginal significance of the quantity of that particular product which is put upon the market." The second part of the formula can remain unchanged.

The argument in support of this principle is as follows. First, the price of each member of the group of products must

be such as to express its marginal significance, because, under the conditions given, the quantity of each of the products is virtually fixed, and hence it comes under the laws of fixed-supply goods. This, of course, does not mean that the supply of each commodity is literally unchanging; but that its changes do not take place in response to conditions which affect that commodity itself only, but rather in response to conditions which affect all the commodities of the group. When, therefore, the price of any one of them is in process of determination, the supply of that one is virtually fixed; and hence the principle governing its price is the one which governs the price of fixed-supply goods. But the principle in question makes the price of these goods depend upon marginal significance; and so, marginal significance governs the case now before us.

It is no less certain that the prices of all the members of the group must be such that the sum total of their money values will equal their joint cost of production. This result is bound to be brought about through processes already thoroughly familiar. If at any point the sum total of the group prices should rise above this total cost of the group products, capital will move into the industry, supply all along the line will increase, marginal significance will fall, and so prices will fall. Conversely, if the total costs are not covered by the total values, capital will withdraw from the industry, the supply of the several commodities will fall off, their marginal significance will rise, and so prices will rise. Doubtless this readjustment would be much more complicated and hence much slower than in the case of isolated individual products, but in the long run it would inevitably come about.

Principle. *The price of each member of a group of joint-cost products tends to be that price which expresses the marginal significance or utility of the quantity of that particular product which is put upon the market, provided that the sum of the money values of all products of the group tends to equal their joint cost of production.*

Illustrative Problems

1. Enumerate some products of a Michigan farm which might be thought of as by-products.

2. Discuss the question as to whether the transportation between Detroit and Jackson of products of quite different types, for example, coal and dry goods, truly gives rise to a case of joint-cost products.

3. "The recent fall in the price of cotton is largely due to the improved manufacture and (increased) uses of cotton-seed oil." Marshall's Economics of Industry, page 225. Explain why these facts should tend to cause a fall in the price of cotton.

3. Diminishing-Cost Goods

If the wooden chair, the output schedule of which was presented in Chapter XVIII is taken in the earlier stages of this schedule, it belongs in the class of diminishing-cost goods,—the more output producers try to furnish, the smaller is the cost per unit. This case we sometimes treat as a third sub-division of variable-supply goods. The general principle for variable-supply goods that price tends to equal cost, if properly interpreted, is really adequate here, and proper interpretation only requires us to remember that the cost of production meant in our principle is the cost which is representative at the very time mentioned, not at an earlier or a later date. Nevertheless, as this case is one of unusual practical importance, it seems to deserve special comment.

The theory is comparatively simple. So long as the demand for commodities of the type considered is still relatively small, persons producing them are obliged to employ expensive methods of production; hence cost and, so, price is high. Presently, demand shows a large increase, and in consequence producers are able to realize the various gains of large-scale production, with the result that cost and, so, price is greatly diminished. Accordingly, if we wish to look at the period which includes these changes as a totality and state the law

which governs that period as a totality, we have to say that price tends to equal *the lowest* of the costs of production. The importance of this law is best seen in connection with the theory of investment. In the earlier stages of a new industry, while crude or experimental methods are being employed, price is so high that producers who intend to introduce improvements which will greatly reduce cost are wont to anticipate therefrom enormous profits, and perhaps attempt to attract investors by representations to this effect. But investors should remember that, just because it is going to be possible to reduce cost of production, the price itself is bound to fall, and the great profits described by promoters will, in all likelihood, fail to be realized.

The principle may be succinctly stated as follows:

Principle. *The price of diminishing-cost goods tends to equal their cost to producers working on the largest scale justified by the existing conditions of demand,—monopoly being excluded.*

4. Fixed-Supply Income-Bearers

Another special case is furnished by the fixed-supply income-bearer, for example, a piece of land rented for business purposes. First, with regard to income-bearers in general, we remark that, between their prices and their incomes there must tend to prevail at all times *a fixed ratio* approximately equal to the current rate of interest. When the rate of interest on money loans is approximately 5% then, between the price of an automobile, let us say, which is to be used for purposes of hire and the net money income derived from that automobile,—due allowance having been made for repairs, replacement, labor services, and so on,—the ratio is bound to be approximately 100 to 5 or 20 to 1.

Now, the establishment of this ratio may conceivably be brought about in either of two ways: (1) the price of the automobile having been fixed, the income may move up and

down till it settles at a figure just 1/20 of the price of the automobile, or (2) the income having been fixed, the price of the automobile may move up and down till it settles at a figure just 20 times as great as the income. Which will it be? This depends surely on which of the two things, the income or the price of the auto, is free to move, and so able to put itself in the required relation to the other. With a commodity like the automobile, the one which must do this is surely the net income. As we have just remarked, the price is fixed by cost of production, and therefore is not able to move at all. The income, however, moves with perfect freedom. If the net incomes derived from renting automobiles are too large considering the price of machines, then competition will increase, and in consequence rentals and incomes will decline. If incomes are too small, competition will lessen, whereupon rentals and incomes will increase. Accordingly, we may say of producible income-bearers, that their price is first fixed and *to* this price the net income is adjusted.*

Passing, now, to non-producible income-bearers such as land, we find ourselves facing a very different problem. No element of cost is here in operation. Utility or significance only can affect price; and the particular significance which effects it is obviously that given off by the land for a certain definite time. In short, the first thing to be fixed is, not the price of the land as a whole, but the price of a year's use of the land, its income; which income, having been fixed, determines in some way the price of the land itself.

Here again, as with producible income-bearers, the relation between the price of any income-bearer and its income is

* The student must remember, however, that the price of constant-cost goods is *not always* governed by cost. A necessary condition was expressed in the phrase, "the continued production of which is demanded," which appears in the formula on page 285. Producible income-bearers at times pass into the status of non-producible ones.

fixed in advance* by the existing ratio between capital in general and the income therefrom. When 5 per cent. is the prevailing rate of interest, we can be pretty sure that the net yearly income of a piece of ground which commands a price of $1,000 must be about $50.

In this respect, then, the piece of ground and the automobile are alike. But, in the matter of the *causation,* as we said, the cases are entirely different. The income of the machine adjusts itself to its price or cost; the price of the land adjusts itself to its income. We cannot say: the land is worth $1,000, hence its net income must be $50. Rather, we must say: the net income of the land is $50, hence its value must be about $1,000. To use another illustration, suppose a certain building site regularly yields a net income of $100, and that the current rate of interest on long-time loans is about 5 per cent. Then, the price of the site will tend to be as many dollars as .05 is contained in 100, or $2,000. The usual procedure, when 5 per cent. is the rate, is to multiply the income by 20, which gives the same result as dividing it by .05.

If, now, we put into formal shape the point here elaborated, we have the following

Principle. *The price of an income-bearing property not capable of duplication tends to equal the sum of money which, lent at the current rate of interest, would yield a yearly income equal to the net yearly income of the said property.*

* This is not to say that the income-bearer in question has no weight in determining the ratio between capital in general and the income therefrom. Doubtless every transaction involving an exchange of present wealth for the right to a series of future incomes helps somewhat in fixing the rates at which all such exchanges take place. But as we have already seen, the price-making forces come to a head, so to speak, in a particular class of transactions,—those which are *marginal,* those in which marginal significance or marginal cost or both are determined. Accordingly, we can safely treat almost any particular transaction of the kind here engaging us, as one to which is being applied a ratio of exchange already determined elsewhere.

Illustrative Problems

1. If a certain mining stock pretty generally yields a net income each year of $54 per share, what would its price tend to be, supposing that the usual rate of return expected in such lines of industry is about 7 per cent.? Prove.

2. If the dividend of the above stock fell to $37, what would you expect the price of the stock to become?

3. Suppose you are considering the purchase of a $100 government bond, untaxed and paying 2 per cent. interest. What price could you reasonably pay, if the rate commonly obtained on securities of this grade was 1.9 per cent.? Prove.

4. Here is a piece of farm land which regularly yields a net income of $1,700. What would its price tend to be when the rate of interest in such lines was about 5.5 per cent?

5. Here is a site in a large city which yields a ground rent of $51,000 a year. Suppose that the Henry George ideas came to prevail in said city, so that the tax on the site named is fixed at 93 per cent of its rent.

(a) What would the price of the site tend to be when the rate of interest was about 5 per cent?

(b) What would it be if the rate of taxation were raised to 100 per cent., the rate of interest remaining 5 per cent.?

6. Supposing that there were no interfering causes, what would you expect the price of a government bond bearing 2 per cent. interest to do in times when the rate of interest has been exceptionally high for many months?

7. A certain building site regularly yields a net income of $300 a year. This fact would cause it to have what market value when the rate of interest was 8 per cent.? 6 per cent.? 5 per cent.?

8. A certain automobile which is hired out, regularly yields its owner a clear income over all expenses of about $300 per year. With interest at 6 per cent., this fact would cause the car to have what market value? Is this a reasonable problem?

9. An automobile costs $1,200 and lasts only three years. With interest at 6 per cent. and with 6 per cent. added for the trouble and risk of running an automobile livery, what

must an automobile earn during a year to make the business pay?

10. A certain building site is worth $22,000. With interest at 6 per cent., what surplus over other expenses must any business located on the given site pay in order to make the use of the site for that purpose profitable? Interpret it so as to make it an illegitimate one.

5. Price Under Monopoly

As we have emphasized repeatedly, our discussions of price determination assume perfect freedom of competition. The consistent distribution of topics would therefore seem to require that the discussion of monopoly should appear separate from, and supplementary to, the treatment of price in general. We shall not, however, be able to undertake an adequate treatment of the topic in any connection, so that it seems best to touch upon some of its most significant features here. Moreover, this procedure is in a sense justified by the fact that price-determination under monopoly is not a process distinctly different from those already described, but merely a variant from them. Monopoly, as it were, injects into the situation a new condition under which the principles already noted as operative work out the result.

The first point to be made is that, in respect to its more immediate determination of price, we have under monopoly merely a special case of fixed-supply goods. The supply of the monopolized good is a fixed one; but this fixedness is not of natural origin, is not due to any absolute limit nor to the limit of our capacity to produce. Rather, the monopolist consciously, arbitrarily limits the amount produced, or, at any rate, the amount put on the market. It follows that, immediately speaking, the law governing monopolist price is the same as that given for fixed-supply goods. The normal price of goods sold under the condition of monopoly must be one which expresses the marginal significance or utility of the output. The only qualification needed is one which recognizes

the artificial nature of the limit set. We might then restate the formula as follows: *The normal price of monopoly goods tends to be one which expresses the marginal significance of the supply as fixed* by the free choice of the monopolist.

The second point to be noted gives us a more fundamental governing principle,—a principle which tries to define the *normal price* of monopolized goods, the price which, in view of all the circumstances, including "the free choice of the monopolist," tends to be established. The use of the word "normal" here may sound strange; for it is probable that most people think of monopoly and the monopolist's free choice as doing away with all normality of price,—as fixing price in a purely arbitrary way. This, however, is going much too far. Monopoly prices, though less submissive to natural laws than competitive prices, are not, after all, entirely free from such laws. The monopolist is coerced by conditions into fixing his prices, not according to his own caprice, but in conformity with certain broad principles over which he has no control.

In the first place, if a monopolist puts his prices too high, he will be disappointed in finding his gains smaller than they would be if he had set his price lower. Thus, suppose that petroleum is a monopolized product, and that a section of its demand schedule is as follows: 1,900 million gallons wanted if price is 9 cents; 2,500 millions if price is 8 cents; 3,000 millions, if 7 cents; 4,000 millions, if 6 cents. Suppose, further, that the total cost per gallon is 4 cents, so that there is a clear profit of 5 cents per gallon if the selling price is 9 cents; of 4 cents per gallon, if price is 8 cents; and so on. If, under these circumstances, the monopolist fixes the price at 9 cents, he will clear $95,000,000, whereas at 8 cents he would have cleared $100,000,000. What he gains through larger profit on each unit of product he will more than lose by diminishing the total number of units sold.

On the other hand, it would be foolish for the monopolist to go to the opposite extreme in carrying out a policy of lowering price in order to increase demand. Thus, if he puts

the price down to 7 cents, he will indeed cause demand to increase from 1,900 millions to 3,000 millions; but the lowering of profit on each unit will more than offset this gain in amount sold. His net profit will drop to $90,000,000. In short, the self-interest of the monopolist will dictate that he fix on the price which insures that the product of the net profit per unit output into total output is the highest possible; and this gives us the general principle determining normal price under conditions of strict monopoly.

Principle. *Broadly speaking, the normal price of any monopolized commodity tends to be that price which will secure the largest net return to the monopolist.*

A cursory examination of the preceding analysis shows plainly that the cause which hindered the monopolist from pushing price upward indefinitely was the fact that as price rose demand fell off,—in other words, demand was elastic, varying inversely as price. If demand had diminished more rapidly with increase in price, the price actually established would have been still nearer cost of production. If demand had changed less rapidly with increase in price, price would have been put still farther above cost of production. Hence the following

Corollary. *The tendency of monopoly price to rise above the competitive normal varies inversely as the elasticity of the demand for the monopolized commodity.*

It obviously follows from this corollary that every cause which increases the elasticity of the demand for a given commodity diminishes the tendency of price in said case to separate from the competitive normal. Thus, the appearance on the market of a commodity which can be used as a *substitute* for some monopolized one diminishes our dependence on the latter and so makes its demand schedule more elastic.

The preceding discussion has brought out the general principle governing normal price under monopoly. But it is

possible to be a little more specific regarding one particular type of monopoly which has much prominence in our day. This is known as the *capitalistic* monopoly,—one which owes its origin to *the control by the monopolist of an exceptional volume of capital.* Such a condition enables a man or group of men to attain the position of monopolist, to gain and maintain exclusive control of output, largely because it enables them *to produce more cheaply than rivals and hence drive them out of business.* But it is plain that, to succeed, monopolies of this sort *must keep prices fairly low,*—somewhere in the neighborhood of *cost to outsiders;* since otherwise competitors will be continually starting up, and will have to be bought out at considerable cost or driven out by destructive commercial wars. Formulating this point, we have the following

Principle. *The normal price of goods produced by capitalistic monopolists tends to approximate a figure not much above cost of production to outsiders.*

Illustrative Problems

1. Suppose the demand schedule for Milton's autographs is as follows: 1 wanted at $200; 2 at $175; 4 at $150; 5 at $140; 8 at $125; 9 at $119; 12 at $100; 13 at $90; 15 at $75; and 20 at $50.

(a) If there came on the market 9 autographs, what price would they tend to have under free competition?

(b) What price if all were owned by one man?

(c) Answer the same questions, supposing the number of autographs to be 15.

(d) Answer the same questions, supposing the number to be 20.

2. When the United States Steel Company was fully organized, many independent producers desired the Trust to join with them in raising the prices of steel products. The authorities of the Trust, however, refused, thinking it expedient to maintain the old level. What do you suppose was the reason?

Miscellaneous Problems in Price

1. There come on the market eleven specimens of a certain rare object to be disposed of at the best price attainable. If the demand is as follows: 1 wanted at $65; 2 more at $60; 4 more at $50; 5 more at $45; 6 more at $40 ;etc., what price will tend to be reached? Prove.

2. In the last problem, suppose a tax of $5 to be levied on each specimen sold.

(a) What effect on price would be produced?

(b) Who would bear the tax in the end?

3. In stating the principle that the prices of goods tend to equal their money cost of production, some writers prefer to say "cost of *re*production."

(a) Why do you suppose they have this preference?

(b) Show that, on the assumption implied in the very idea of *normal* price, the change from "cost of production" to "cost of *re*production" is at least unnecessary.

4. "If the state should inaugurate the policy of levying on the livery business a 10-per-cent income tax, the value of all plants devoted to this business would necessarily fall ofi 10 per cent." Criticise.

5. "Every owner of a railroad, of a patent, of a book, or of a (monopoly) property of any kind, finds that he makes more money by putting prices down to figures that are reasonable, that is, to figures which correspond to the values to the buyers of the things sold, than by keeping them up beyond those figures."—Stickney.

(a) Show that the words "which correspond to the values to the buyers of the things sold," are useless as a definition of "reasonable" prices. (Try to think of some object which has a price greater than that one which would express the value of the object to buyers.)

(b) In the case of producible goods, what price is commonly considered a reasonable one?

(c) When "reasonable" is understood this way, is it probable that the first half of Stickney's statement is true?

(d) Point out some cases of monopoly of which the statement can be affirmed with a fair degree of accuracy.

6. "Analogous arguments, * * * might be made with regard to municipal railways, lighting companies, and water companies. These are all, for one cause or another, of a monopolistic character. The public enjoys no guarantee of fair treatment on account of any competition that can affect them." Adams' Finance, p. 264.

What is the doctrine with respect to competitive industries which is implied in the last sentence of the quotation?

7. "When the demand for wheat increases so as to exceed the capacity of the best land, the price of wheat rises so as to leave an excess or surplus over cost of production, and this surplus is driven into the hands of the landowner as rent by the natural competition of tenants. But, now, the high price of wheat leads to the cultivation of inferior soils, which increases the supply of wheat so as to satisfy the demand, and *thus brings the price of wheat back to its old place.*" Criticise the part in italics.

8. "Alone and lost in the desert, his last morsel of food and his last drop of water gone, he would cheerfully have given his gold, his yachts, his palaces, all his wealth, for the meager fare of the day laborer. At last the illusions which he shared with civilized society were fully dispelled. The unutterable folly of the comparative estimates which men commonly put on things became manifest. At last, on the verge of oblivion, he saw things in their true, their real, proportions." Criticise.

9. A certain man improves the opportunity offered by a growing city of 40,000 inhabitants to develop a messenger service business, from which at the end of three years he finds himself getting a net return, after allowing himself wages for management, of $700. The capital invested, which includes a bank balance of $200 which he commonly maintains, is only $500; but he has to provide for a pay roll of about $200 a month or $2,400 a year. He now tries to sell out the business, asking for it $8,750. Assuming that the good will of the business is worth $500, and that 8 per cent. is a reasonable rate of interest and profit, is the price proposed a reasonable one? Does the size of the pay roll make any difference? Explain.

10. A railway lawyer is trying to prove before a court that a proposed 2 cents per mile passenger rate is unjust to his road in that it will not permit paying a reasonable profit, say 6 per cent., on the investment. He admits that this rate will be realized on the physical equipment of the road, valued at $5,000,000; but argues that the company has to provide for a pay roll of $50,000 every month and ought to earn profits on this as well. Now this claim may or may not be reasonable. It all turns on whether providing for this pay roll involves, etc. Finish the sentence.

11. "A friend of mine owns in a Chicago suburb a house and lot which used to rent for $300 a year. Last year real estate in his neighborhood had a boom, with the result that his property increased in value $3,000. In consequence he raised the rent to $480." What is the matter with the economic doctrine involved?

CHAPTER XX

THE THEORY OF FINAL PRICE DETERMINATION

That our previous teaching with respect to the processes and laws of price-determination is more or less provisional has already been affirmed or implied in various connections. It is now incumbent on us to explain why this is true and to supply something more final.

The principal inadequacy in our previous treatment connects itself with the prices of *producible* goods, and, more especially, with the *doctrines which relate the prices of such goods to their cost of production.* Throughout our discussion of those doctrines, it was assumed without comment that those constituents of cost for which the entrepreneur has to make a money outlay have prices which he *finds determined once for all.* Starting out to manufacture some commodity, he learns that he must pay so much for raw materials, so much for tools and machinery, so much for labor, and so much for the use of capital. In consequence of these facts and in consideration of various sacrifices required from the entrepreneur himself, the product which he puts on the market must necessarily have a certain price.

Now, our assumption that the prices of cost-goods are fixed, determinate quantities, is for many purposes sufficiently near the truth. But, if our concern lies with the really ultimate economic facts, the assumption is distinctly false. In the first place, some cost goods are *themselves products;* hence, their prices cannot be fixed, but rather must be in process of determination under the same principles which are determining the prices of final or consumers' products. Since lumber is a product of standing timber, labor, etc., its price

must undergo a fixing process not essentially different from that of furniture which is a product of lumber, labor, etc.

At first thought it might seem as if this difficulty could be met by differentiating between *produced* cost-goods and what we will call *primary* cost-goods,— primary cost-goods or factors being those which cannot be resolved into anything antecedent to themselves, for example, the soil, ores in the earth, water power, and labor. On this plan, the prices of the primary cost-goods would be conceived as antecedently fixed; and, being thus fixed, they determine the prices of intermediate products or produced cost-goods; when, finally, the prices of these latter determine the prices of consumers' products.

But we are really no better off than before. We have, indeed, gotten rid of the absurdity of representing the prices of *produced* cost-goods as determinate; but we still assume that the prices of *primary* cost-goods are determinate, an assumption which is little less absurd than the former. Iron ore stored up in the earth, a favorable site for business, the soil itself, a day's labor, none of these has a specific price attaching to it from eternity. *The price of every one of them, as we all know, is frequently altered.* We must not infer from this that the principles heretofore laid down, on the assumption of fixed-price primary cost-goods, are theoretically invalid, or practically of no importance. In their relation to any particular product, and, for extended periods in their relation to products in general, the prices of cost goods are in fact determinate. In dealing with most practical problems, the assumption of such determinateness is entirely legitimate. Nevertheless, the prices of these primary cost-goods, when considered in any ultimate sense, are not things determinate, but on the contrary, *things which frequently show change.* And this circumstance must of necessity have some influence upon the prices of goods produced from the primary cost goods.

We thus find ourselves face to face with certain fundamental problems in respect to value or price which, if we wish

to get something like an adequate notion of the whole matter, can no longer be neglected. Of these problems, the most central one concerns the processes whereby the prices of primary cost-goods or factors are determined. Accordingly, our next task will be to attempt a solution of this problem.

Section A. How the Prices of Primary Cost-Goods or Factors Are Determined

In the literature of our subject, this problem has seldom been distinguished as sharply as its importance merits, being usually confused with the more superficial processes of price-determination which have been studied in previous chapters. Nevertheless, one may distinguish at least three types of doctrine concerning this problem, as being implicit in price discussion. One group of writers teach that the value or price of the primary factors is determined solely by their marginal *utility*: the productive capacities and resources of man are progressively distributed over the whole field of production, from the most important products downward till they are all used, and their utility in the marginal use fixes their value. A second group find the sole determinant in the *cost,*—the *disutility* cost—of supplying directly the human elements and making available the elements coming from nature, outside of man. Psychic cost is the original cost of everything, and determines what we must pay to secure the forthcoming of supply. A third group recognize the presence of *both utility and cost* determinants in the process, advocating what is often called an *equilibrium theory.*

The doctrine maintained in this text is a form of the equilibrium theory. It gives most weight to significance or utility, but it insists on recognizing the influence of disutility cost in the case of those primary factors which can be supplied only by processes which involve that element. It may be formulated for the sake of definiteness in the following statement:

Principle Governing the Prices of Primary Cost-Goods

Broadly speaking, the price of any primary cost-good tends to be that price which expresses the marginal economic significance of that cost-good to society in view of the totality of conditions which at the moment obtain, and which also expresses the marginal disutility of supplying said cost-good in case there is such a disutility.

In maintaining this proposition, we will begin with the second or disutility part as involving fewer difficulties in analysis and presentation.

1. The Prices of Primary Cost-Goods and Disutility

It is a fact too evident to need argument that the supplying of those primary cost-goods which are of human origin may, anyhow, involve a disutility. Working or waiting or taking responsibility can be carried so far as to be distasteful. Further, it cannot be doubted that at the present time, in societies which have attained to any high economic development, the supplying of these services has, with many of the persons concerned, gone so far that disutility is now actually felt. Much or most of the labor furnished carries with it a psychic sacrifice; and the same is true of some part anyhow of the waiting and responsibility-taking.

Again, it cannot be doubted that, as respects a portion of the supply, the amount of that supply is influenced by the disutility involved. Certain persons supply less than they would if the disutility of doing this were diminished. We will not work as many hours per week, or month, or year, as we would if there were no disutility attaching to our efforts; and the same surely is applicable to waiting and responsibility-taking.

But, if the supply of these services is bound to be less—appreciably less—because of the disutility involved, it necessarily follows that the prices of such services will tend to be

higher on account of this disutility. In this statement, the adverb "appreciably" was inserted to exclude one hypothesis under which the statement would not hold. If the demands for these types of service were so great as compared with our capacity to furnish them that their price would be far above any disutility at which an appreciable addition to output could be made, their prices would be fixed by utility or significance without respect to disutility, like the tea in our rare-goods problem. Under such a hypothesis, if there was coincidence between price and marginal disutility, this would be due to the fact that the marginal disutility had adjusted itself to a price already determined by utility or significance. But manifestly this hypothesis is quite outside the limits of practical life. We could add materially to the output of all these types of service by pushing ourselves harder. In fact, we often do so under the special stress of circumstances, as has been shown many times during the present war. It is, then, quite certain that the disutilities involved in supplying these primary factors of production commonly have some influence on their prices.

But, again, it can scarcely be doubted that this relation between the disutilities of supplying these primary factors and their prices is capable of more precise statement. The marginal disutility of each quantity of these factors supplied will naturally determine the supply price of that quantity. Now, the actual price being stopped from going below the marginal supply price, or up to the first extra-marginal supply price, will necessarily be stopped from going below a price which expresses to the man supplying the factor the marginal disutility of doing this or up to a price which expresses the first extra-marginal disutility of doing it. Hence we seem justified in considering the second part of our formula appearing on page 313 established. The price of any primary cost-good tends to be that price which *"expresses the marginal disutility of supplying said cost-good in case there is such a disutility."*

The above argument in support of the proposition that the prices of the primary factors must adjust themselves to the disutilities of supplying those factors, is obviously based on the ordinary principles of price-determination. Looked at by large, there would seem to be no doubt as to its validity. There are one or two objections, however, which perhaps should receive a moment's attention. First, it is often objected, though not by economists, that, in the supplying of *the major part* of two of these services, waiting and risk-taking, no disutility is involved. Much of the capital of the world is furnished by persons who could not consume their incomes if they tried. Anyhow, they would find the task much more difficult than that of saving. In like manner, many entrepreneurs are glad to undertake the responsibilities of business, for the sake of the power and prestige which it brings, and because they positively enjoy the taking of risks.

To this objection the answer is easy. In all value problems, we are concerned, not with the attitude of the majority of the persons involved, but with that of *the marginal units*. If there is any considerable amount of the capital in use which would not be forthcoming if the disutility of supplying it were increased, disutility is bound to play a part in determining the price of waiting. And surely this is the case. Many persons are supplying capital who find the burden of doing so almost unbearable. Similar reasoning applies to the case of responsibility-taking. There are surely a large number of entrepreneurs who are almost ready to give up providing this function because its burdens are so great. It is their attitude, their readiness to drop into some other field of activity if the reward is not sufficient to cover the disutilities they experience, which really determines that the disutility in question must influence the price paid for this service.

Another objection applying especially to labor is that, under modern conditions, the laborer's *freedom of action is too limited* to make possible the working of the process indicated

above. Doubtless under a simpler order of things the laborer would tend to cease furnishing the supply of his services as soon as the added utility fell below the marginal disutility of his labor. In other words, he would stop his day's work, say at ten hours, or nine, or eight, unless an additional hour would clearly add enough to product to offset his discomfort. But under modern conditions the length of the day is largely a fixity, determined by custom and by the necessities of business processes in which great numbers of persons and a great volume of capital are working in co-ordination. The laborer cannot decide of his own motion to shorten his day to nine hours or eight hours; since he is only a part in a vast and complicated mechanism. This shortening of the day can only be done concertedly by the common consent of many employees and many employers.

This objection is not without point, yet it has much less weight than seems at first sight. The disutility of labor can act upon the supply and so upon the price of labor, not only by altering the length of the labor day, but also by diminishing the total number of labor days and the total number of men who labor at all. The first is especially conspicuous in times when the demand for labor is very great and the price very high. But at all times it probably plays a much larger part than is commonly supposed. A very considerable per cent. of the men who are engaged in the ordinary trades which we have in mind when speaking of labor in general, work a few days or weeks or months, and then loaf for a time, not hesitating even to give up the present job, confident that they can easily find another.

Doubtless the number of men who are ready to quit work altogether and thus reduce the supply when wages are inadequate to cover the disutility as rated by them, is smaller than the number who quit work temporarily. Men are more loath to become dependent on relatives or "take to the road." But this number is after all not negligible. It helps to give the labor supply an elasticity sufficient to make disutility a

real factor in the determination of wages. For we must remember, as in all these cases, that it is not necessary that *all* the supply of any factor should be ready to drop out: it is sufficient that *an appreciable margin* should be in this attitude.

2. The Prices of Primary Cost-Goods and Significance or Utility

A. Hypothesis of Only One Primary Cost-Good

We come now to the most difficult part of our task, to show that the price of a primary cost-good must tend to approximate a price which expresses its marginal significance in products. To simplify the proof, let us assume at first that there is only one primary cost-good and the stock of that cost-good is absolutely limited.

Suppose this single cost-good is labor, and that a unit of labor is represented by L. Then all products would be, in effect, only so many Ls,—3 Ls or 10 Ls or 50 Ls. In like manner, the significance of products—wheat, lumber, coal, etc.—would be, in effect, only the significances of the Ls, the units of labor, entering into them.

Now let us assume that different kinds of products have very different degrees of generic importance, that wheat, for example, is more important than lumber, and lumber more important than coal. Assume, further, that the want schedules of wheat, lumber, and coal are rather inelastic so that the marginal significances or utilities of the three are considerably different in amount. Then, when equilibrium has been established with our whole stock of Ls most wisely employed, *the price of one L,*—a labor unit—*would have to be equal to the price of coal, the marginal product, divided by the number of Ls in that product.* If it were greater than this, coal could not be produced; if it were less, the special profit thus secured to entrepreneurs would lead them to compete for the possession of the Ls, and, so, would raise their price.

But the price of the marginal product which would determine the price of Ls in the way indicated would necessarily tend to approximate a price which would express the marginal significance of that product. That is, the price of coal, in the illustration, would tend to approximate a price which would express the marginal significance of coal. It could not be higher than such a price, since that would make consumers pay for coal more than it was worth to them; it could not go below such a price far enough to reach the marginal significance of the first extra-marginal product, say iron, since that would cause iron to compete for the stock of labor units, and so tend to cut down the output of intra-marginal products, coal, lumber, and wheat. But, if the price of one L must equal the price of its marginal product, coal, divided by the number of Ls in coal, and, if the price of coal must approximate a price which expresses the marginal significance of that product, then the price of one L must approximate the price which expresses its marginal significance in products.

We have seen that, if there were but one primary cost-good and the stock of this were definitely limited, its price would necessarily approximate one which would express its marginal significance or utility. Would our conclusions be seriously altered if our one cost-good were producible and imposed a disutility upon those persons who supplied it? Marginal disutility has entered into the problem and, as shown in the preceding section, price will need to coincide with *that quantity*. Will this tend in any way to weaken our contention that it must coincide with marginal significance? By no means. Broadly speaking, significance and disutility are always moving in opposite directions,—marginal significance is declining as output increases, while marginal disutility is increasing as output increases. As a consequence, there *must be* one price which expresses *both* marginal significance and marginal disutility.

B. Hypothesis of Several or Many Primary Cost-Goods

It is now plain that we should naturally expect the price of a primary cost-good to be one which would express its marginal significance, *provided there were but one such primary cost-good to deal with.* But this is very far indeed from representing the facts of life; we have to deal with scores of primary cost-goods, instead of just one. It is, indeed, true that economists are wont to reduce these numerous elements to four, land, labor, capital, and responsibility-taking; and some have even reduced them to two. But this can be done only by making abstractions of more than questionable validity; and, anyhow, all writers admit the existence of at least two primary factors. But, again, not only are there several or many different primary cost-goods, these cost-goods are seldom, if ever, engaged in producing by themselves. In practically all cases, several of them are acting together in getting out some commodity. Accordingly, it becomes necessary to set up a hypothesis which involves these two very important conditions: (1) that there shall be many factors instead of one, and (2) that, in production, these factors shall practically always be acting jointly.

These new conditions increase in a material degree the seriousness of our task of showing that the price of a primary cost-good must express its marginal significance in production. The working of the processes which would tend to make the price of the single primary cost-good express its marginal significance is contingent upon the ability of producers to ascertain how significant is the unit of the cost-good and bid for it accordingly. Now, to get this knowledge offers no material difficulty when we are dealing with one cost-good. *That one cost-good is responsible for the whole product and hence has the same significance or importance that the whole product has.* But when several or many cost-

goods are acting jointly, how can we ascertain the degree of significance attaching to each one *in that particular process?*

In my opinion, we can rarely, if ever, accomplish it at all. In many cases, we cannot isolate even the economic product of a factor which is jointly working with other factors. In other words, the process which we depended upon in the one-factor hypothesis,—the competition of entrepreneurs for cost-goods *the real significance of which was perfectly clear*—this process fails us almost completely as soon as we enter an order where many factors are working in organic combinations.* Nevertheless, I believe that *the spontaneous competition of entrepreneurs necessarily tends to give to each factor a price which expresses its marginal significance in production.* The general character of the process referred to is expressed in the following thesis:

The presence on the market of prices for primary cost-goods or factors different from the prices which would express the marginal significances of those factors would of itself be sufficient to set up a series of reactions tending to replace the existing prices with such prices as did truly express the marginal significances of the factors; and these reactions could not cease until the latter prices had been established.

The argument supporting this thesis is not extremely difficult, but it must be followed with care. If we proceed by way of a series of formal propositions, we shall perhaps keep our bearings more easily.

1. *Each primary factor or cost-good really has its own specific significance in view of its uses in production.*

In order to establish this proposition, let us assume condi-

* The opposite opinion is held by some economists of very high standing. In their opinion, it is possible to follow quite exactly the marginal product described on page 317, and, hence, to ascertain the real significance of each factor as measured in product.

tions of such a nature that it will be impossible to ascertain directly the share of the product which is imputable to any one factor. Suppose we have just three kinds of primary factors, designated Ls, Ws, Rs, or land, labor, and capital; that our stock or output of each is definitely fixed; that, even after we have utilized our whole stock of each, we still have unsatisfied wants which the possible products of those factors could satisfy; and that, when the stocks of these factors are most wisely utilized, they are devoted to the making of three products, P_1, P_2, P_3, or spades, hoes, and trowels. Suppose, further, that the proportions in which Ls, Ws, and Rs may be combined is absolutely fixed for each product, and different for the different products, being 3 land, plus 2 labor, plus 11 capital for spades; 4 land, plus 10 labor, plus 2 capital for hoes; and 10 land, plus 3 labor, plus 3 capital for trowels. Finally, suppose that the values or prices of the three products, spades, hoes, and trowels are 62, 34, and 31.

Now we have before us a set of conditions under which there seems to be *no possibility of directly ascertaining the technical contribution* of Ls or Ws or Rs. Yet even under these conditions, *each of the factors involved, Ls, Ws, and Rs, has its own specific significance.*

In the first place, we are able to set forth a series of propositions with respect to the productive capacities of our factors Ls, Ws, and Rs.

3 Ls plus 2 Ws plus 11 Rs will produce 1 P_1
4 Ls plus 10 Ws plus 2 Rs will produce 1 P_2
10 Ls plus 3 Ws plus 3 Rs will produce 1 P_3

In the second place, if we combine these propositions with the data as to prices of products stated in the last condition, we have the following equations:

3 Ls + 2 Ws + 11 Rs = 62 cents
4 Ls + 10 Ws + 2 Rs = 34 cents
10 Ls + 3 Ws + 3 Rs = 31 cents

Solving these equations for each factor, we have the following results:

value 1 L = 1 cent
value 1 W = 2 cents
value 1 R = 5 cents

That is, under the conditions assumed, one L, (one unit of land) would have an importance or significance to us of 1 cent; one W, (one unit of labor) would have a significance of 2 cents; and one R, (one unit of capital) a significance of 5 cents. We may conclude, then, that so long as different factors are combined in different proportions to produce different commodities which sell at different prices, each factor will necessarily have its own specific significance, even though there is no way of directly ascertaining that significance.

2. Assuming that each primary factor really has its own specific significance in view of its uses in production, we next affirm *that prices for primary factors which did express their marginal significances*—CORRECT or RIGHT PRICES, we will call them—*would guide production aright in respect to both the choice of goods to be produced and the combining proportions of factors to be used in the producing of those goods.*

So long as correct prices prevailed, entrepreneurs would be unconsciously led—led without any knowledge of the real significance of the primary factors—to pursue a correct policy in the conduct of production; they would produce such goods and use such combinations as circumstances called for. By hypothesis, the prices in question truly express the significance of our store of primary factors when these have been assigned to their proper tasks in the proper proportion. Prices of which this is true could not misguide entrepreneurs, could not lead them to err in the choice of goods to be produced or combinations to be employed, for a loss of profit would necessarily follow any such error.

Thus in our former illustration, when the stock of three primary factors was most wisely employed, it was devoted to producing spades, hoes, and trowels. Let us suppose, in addition, that the proper quantity of spades was 500 units; that of hoes was 10,000 units, and that of trowels was 100,000 units. Could the entrepreneur change these quantities without danger of loss? Surely not. For, if he should decide to withdraw some of the factors used in the producing of spades and put them to producing hoes, he would find the price of the latter falling below the 34 cents for which they had been selling, since this would be necessary to bring out some sub-marginal demand to take up the new supply. But their cost would still be 34 cents, for the prices of land, labor, and capital remain as before. He would, therefore, lose money by making such a shift.

But not only would correct prices automatically lead entrepreneurs to produce the right goods, they would also, under conditions of diversity in the combining proportions, automatically lead entrepreneurs *to choose the right combinations.* First, the phrase "right combination" implies that, of the different possible combinations, there is one which, under a given set of circumstances, is the best one,—the correct one for that set of circumstances. Secondly, departures from this theoretically correct combination can be of only two kinds: (a) we may use so large a proportion of the less important factors that we lose in efficiency more than we save in cost; and (b) we may use so large a proportion of the more important factors that we waste in cost more than we gain in efficiency.

But the avoidance of these mistakes makes no call for super-human knowledge as to what are the really correct combinations. Combinations which err in having too large a proportion of less important factors will promptly disclose this fact *in small or inferior output;* thus, a potato patch receiving too much capital expense in the way of seed and fertilizer and too little labor expense in the way of cultivation

would certainly produce an unsatisfactory crop of potatoes. On the other hand, combinations which err in having too large a proportion of more important factors will promptly disclose this fact *in too great cost per unit of product;* a potato patch receiving too much labor expense and too little capital expense might produce many potatoes of high grade but, however excellent the crop, it would not pay for the labor. Either of these results would quickly lead entrepreneurs to discontinue the use of the wrong combinations.

3. If our contention that correct prices for primary factors,—prices which expressed their marginal significance in products—would correctly guide production, has been at all convincing, little argument for the complementary proposition seems needed. *Wrong prices for primary factors*—prices which failed to express their marginal significance—*would guide production wrong,*—would lead entrepreneurs to produce the wrong things or use the wrong combining proportions.

The course of causation is fairly plain. The lower the price of any factor, the stronger the motive which entrepreneurs will have for producing those goods and using those combinations which call for that factor in large amounts. On the other hand, the higher the price of any factor, the stronger the motive which entrepreneurs will have for producing those goods and using those combinations which call for that factor in small amounts. Now, admitting the point made above, that correct prices for the different factors would lead entrepreneurs to adopt a correct policy, it follows necessarily that prices higher or lower than these correct ones would tend to alter the policy of entrepreneurs in respect to the goods produced and the combining proportions used, would lead them to adopt an incorrect policy. More particularly, they would produce too many goods in the producing of which the underrated factors played a large part, too few of the goods in the producing of which the overrated factors played a large part. At the same time, they would employ

too much the combinations in which the underrated factors appeared in abnormal proportion, and would employ too little the combinations in which the overrated factors appeared in abnormal proportion. Thus, if coal mining requires much capital and little labor, and lumbering requires much labor and little capital, and if at a certain time capital is rated higher than its real worth and labor is rated lower, then there will be too little production of coal and too great a production of lumber.

4. We have shown that incorrect prices for primary factors would inevitably lead entrepreneurs to the adoption of an incorrect policy in the conduct of production. We now put forward the proposition which brings our long argument to a conclusion. *The incorrect policy into which entrepreneurs would be led by the presence of incorrect prices for primary factors — prices which failed to express the true marginal significance of those factors—would inevitably set up reactions which could not cease till they had effected a correction of those very prices which had worked the mischief.*

The reasons are plain. Supposing the case to be one of an *abnormally high price* for some factor—a price leading entrepreneurs to *cut down their use* of that factor—the demand for the factor would fall below the stock or natural output, making some portion of the stock superfluous, and this would necessarily cause a fall in the price of the factor; and this process could not cease until the price had reached its natural level. If, on the other hand, we suppose the case to be one of an *abnormally low* price for some factor—a price leading entrepreneurs to *increase their use* of that factor—the demand for the factor at the going price would be in excess of the stock; a condition which would necessarily bring about a rise in its price; and this process could not cease until the price had reached its natural level.

It thus appears that the prices for primary factors or cost-goods which truly expressed their marginal significance and

these only could maintain themselves under the automatic working of economic forces. The prices of such primary factors must, therefore, fulfill this condition.

Section B. The Determination of the Prices of Produced Goods as a Complete Process

We have explained how the prices of primary cost-goods or factors are determined. We need now to show how the processes determining the prices of these cost-goods relate themselves to the immediate processes whereby the prices of produced goods are determined. In other words, we need to set forth a theory for the determination of the prices of produced goods as a complete process. Whether or not it would, in any case, be possible to do this at all adequately, it certainly is not possible with the space at our command. We must content ourselves with an outline so bare that it does nothing more than indicate the most central relations. We shall confine ourselves almost entirely to a general hypothesis so simple and so far from reality that it might perhaps be expected to give results of no significance in relation to the economic world as it is. I believe, however, that it will contribute in some degree to our understanding of a very difficult matter. And, at all events, it is certain that any attempt to present the matter in a more concrete way could end only in failure.

We shall suppose that there is but one primary factor, which we will designate by the letter L, that this is strictly limited in amount, and that it produces consumption goods directly,—without the intervention of intermediate products. The working of this hypothesis we will consider under each of two additional conditions: (1) the supplying of the single primary factor does not involve any disutility, (2) supplying that factor does involve a disutility.

Let us begin with representing our single primary factor by the letter L, and the different products which we need

by the letters P_1, P_2, P_3, P_4, P_5, P_6, naming them in the order of marginal, as well as generic, importance. If the student needs more concreteness in thinking out the problem, he may substitute actual products for these letters, for example, wheat, lumber, coal, iron, wool and copper. It should be understood, however, that any series so chosen is used for illustration only, for it could not, in actuality, conform to all the needs of the argument. We shall limit ourselves here to a highly abstract presentation.

Let us suppose, now, that our stock of the primary cost-good, L, is such that we can satisfy our needs for these *first six* products, but can go no further; that, when our production and consumption are most wisely adjusted, the marginal significances of our six products are respectively \$120, \$80, \$48, \$24, \$12, and \$4; and, finally, that our products, P_1, P_2, etc., contain respectively 12 Ls, 10 Ls, 8 Ls, 6 Ls, 4 Ls, and 2 Ls.

1L	\$10	←	12 Ls	\$120	←	$1P_1$	\$120	←	M S	P_1	\$120
1L	\$ 8	←	10 Ls	\$ 80	←	$1P_2$	\$ 80	←	M S	P_2	\$ 80
1L	\$ 6	←	8 Ls	\$ 48	←	$1P_3$	\$ 48	←	M S	P_3	\$ 48
1L	\$ 4	←	6 Ls	\$ 24	←	$1P_4$	\$ 24	←	M S	P_4	\$ 24
1L	\$ 3	←	4 Ls	\$ 12	←	$1P_5$	\$ 12	←	M S	P_5	\$ 12
1L	\$ 2	←	2 Ls	\$ 4	←	$1P_6$	\$ 4	←	M S	P_6	\$ 4

Fig. 4

Now, it is sometimes carelessly assumed that each product has its price determined by its own marginal utility solely. On such a theory, we should have the results represented in the accompanying diagram (Fig. 4). The marginal significance of P_1 being \$120, would make its price \$120, which would make the price of the 12 Ls entering into it \$120, which would make the price of one L \$10; so the marginal significance of P_2 being \$80, would make its price \$80, which would make the price of the 10 Ls entering into it \$80, which would make the price of each L entering into it \$8; and so on. But

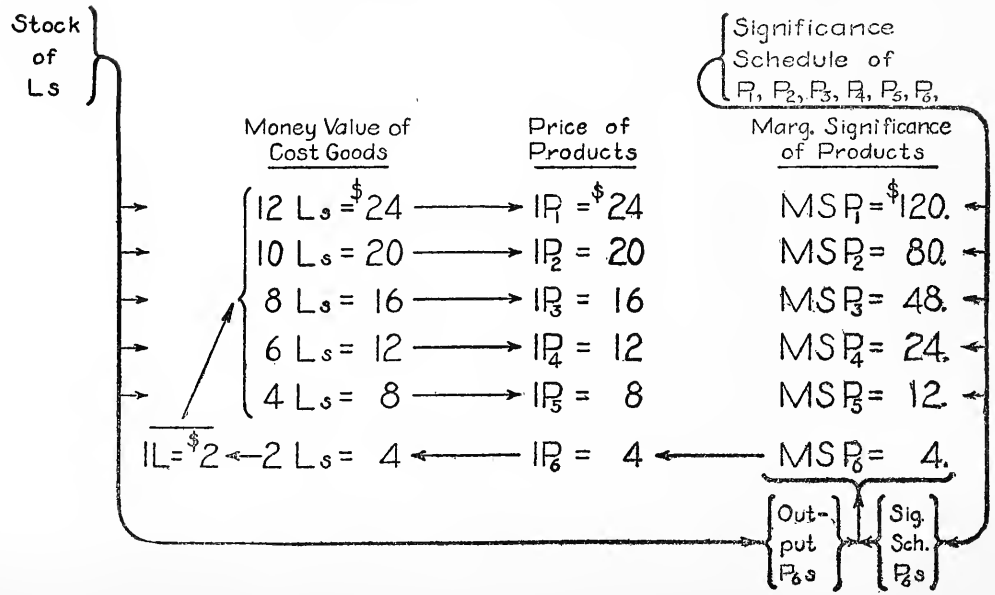
Stock of Ls
Significance Schedule of P1, P2, P3, P4, P5, P6,
Money Value of Cost Goods
Price of Products
Marg. Significance of Products
12 Ls = $24 → IP1 = $24 MSP1 = $120.
10 Ls = 20 → IP2 = 20 MSP2 = 80.
8 Ls = 16 → IP3 = 16 MSP3 = 48.
6 Ls = 12 → IP4 = 12 MSP4 = 24.
4 Ls = 8 → IP5 = 8 MSP5 = 12.
IL = $2 ← 2 Ls = 4 ← IP6 = 4 ← MSP6 = 4.
Out-put P6s
Sig. Sch. P6s

Fig. 5

obviously, this result would be impossible; we should have in the same market at the same time, six different prices, $10, $8, $6, $4, $3, and $2, for the same commodity, one L.

The real course of things would be quite different. Supposing numerous reactions to have brought about a state of equilibrium, the starting point of price-determination would be in the marginal significance of the sixth product. This element being fixed at $4 would make the price of P_6 $4, which would make the price of the 2 Ls contained in P_6 $4, which would make the price of each of the Ls contained in it $2, *and this would make the price of every L* $2. The price of Ls now fixed at $2, would proceed to determine the prices of P_5, P_4, P_3, P_2, and P_1.

This method of explaining the course of causation among significances and products and cost-goods which represents in a general way the Austrian theory of final price-determination, is diagrammatically brought out in Figure 5. It may be summarized in the following four propositions:

1. The marginal significance of the marginal product having been determined, determines the price of that product;

2. The price of the marginal product having been determined, determines the price of each of the Ls entering into it;

3. The price of the Ls entering into the marginal product having been determined, determines the price of all other Ls;

4. The price of Ls in general having been determined, determines the prices of the supra-marginal products.

In this analysis and diagram our statement of the general problem of price determination is not quite complete. We have seemed to go on the assumption that the marginal significance of the marginal product *is alone* in determining the price of the primary cost good. But, as we have already seen, the marginal disutility of supplying a primary cost good also

plays a part in fixing its price. This being true, it is not enough to say that, when spontaneous reactions have brought equilibrium, the marginal significance of the marginal product determines the price of the primary cost-good, which thereupon determines the prices of the supra-marginal products. Instead, we must say: when the natural reactions have brought about an equilibrium, the marginal significance of the marginal product *plus the marginal disutility of supplying the primary cost-good* determine the price of the primary cost-good, which thereupon determines the prices of the supra-marginal products.

This amended theory could be diagrammatically presented in another figure. The diagram would be in the main identical with Figure 5, but would include another column to represent the marginal disutilities of supplying the different quantities of Ls. If only enough Ls to produce P_1s has to be supplied, the marginal disutility of supplying Ls is represented by \$1; if enough for P_2s also must be had, the marginal disutility increases to \$1.10; if P_3s also must be produced, it becomes \$1.20; and so on. As the situation necessarily turns out, production is carried forward until the marginal disutility of supplying Ls is \$2; at which figure, price also settles. And this price is necessary just as much because the marginal disutility of Ls is \$2 as because its marginal significance in P_5 is \$2.

Section C. The Interdependence of All Prices

One more point must close this long but inadequate account of the more fundamental aspects of the price problem. That point may be set forth in the following formal statement.

All prices, especially the prices of produced goods, are interdependent; and equilibrium among the price-making forces can be approximated only when all prices have come to form a coherent, self-consistent system.

One reason why the prices of many economic goods are necessarily interdependent is that the goods have *common origins,* are derived from common factors or cost-goods. Thus the price of steel rails could not be determined independently of the prices of knives, saws, and girders, because all these commodities are alike made from steel, and so their prices will all alike be affected by the price of steel. The price of any such product could be determined independently of the others only in case the steel used in making them were sold, in the same market at the same time, for different prices corresponding to its different uses. But such a state of things we have already shown, in the law of Single Price, to be impossible.

But, admitting this point, cannot the prices of all products *made from one particular kind of raw material* be determined independently of the prices of products *made from other kinds of raw materials?* For example, though the prices of rails could not be determined independently of the prices of engines, girders, saws, planes, and knives, still the prices of all products made from steel could surely be determined independently of the prices of all products made from lead or copper or zinc or wood. On the contrary, this doctrine is scarcely less absurd than the former. Like the steel knives, steel saws, and steel girders referred to in our first example, products made from steel and products made from lead, copper, and zinc *also have common sources,*—the human labor of many different kinds and the capital or waiting-power which is required in all the industries concerned. Consequently if the prices of products made from steel were to be determined independently of the prices of products made from lead or zinc or copper, then the different kinds of labor, the waiting-power, and the other factors which constitute common sources for steel, lead, zinc, and copper—would each have to have many different prices in the same market at the same time, in contravention of the Law of Single Price.

A second reason why many prices are interdependent is that the goods to which they belong are related to each other as *cost-good (or factor) and product.* If the prices of different products made from steel cannot be independent of one another, it is even more obvious that the price of steel and that of any product made from it cannot be independent of one another. This conclusion is unavoidable whatever theory we may hold as to the direction of causation between factor and product.

The price of the cost good may be what it is because the price of the product is what it is, or the price of the product may be what it is because the price of the cost-good is what it is; but surely one or the other or both must be true. It is not possible that each of these prices should be uninfluenced by the other. The total of cost-goods entering into any product is economically interconvertible with that product. To have that total as our property is, virtually, to have that product. The two things are, in effect, the same thing. But the same thing cannot have two prices in the same market at the same time. One of these two must compel the other to have the same price as itself. Their prices are necessarily interdependent.

A third ground for affirming the interdependence of prices is found in the fact that many goods occupy to each other the relation of *reciprocal substitutes,*—if the price of one is too high, the other may be substituted therefor. Electric lighting companies cannot advance their rates indefinitely because of the competition of gas or kerosene; too expensive wool will be conserved by a greater use of cotton for wearing apparel; high prices for meats will increase the consumption of vegetable foods. These changes in the direction of demand will, obviously, tend to cause corresponding changes in prices. The price of one commodity will tend to fall, while that of its substitute will tend to rise.

Finally, all prices are necessarily interdependent because in a broad but legitimate meaning of the language, practically

all goods occupy toward one another the relation of reciprocal substitutes. Each is competing against every other for the opportunity to satisfy our wants. A rise in the price of a commodity destined for the satisfaction of a particular want is likely to cause us to satisfy that want less adequately or perhaps not at all, because a commodity which is adapted to the satisfying of some other want can be had more cheaply. This possibility tends to lower the price of the former commodity and raise that of the latter. And, of course, a fall in the price of the former commodity will tend to have the opposite effect, that is, to compel a decline in the prices of other and competing commodities.

We have shown the soundness of the first part of our general proposition, which says that all prices are interdependent. The second part follows as an immediate inference from the first, and should call for no other argument. Since all prices are interdependent, are reciprocally determined, *reactions among them cannot cease — equilibrium cannot be reached — till they together form a coherent, self-consistent whole.*

CHAPTER XXI

SPECULATIVE TRADING AND INSURANCE

In this chapter we purpose to comment briefly on two forms of economic activity a knowledge of which has not seemed quite essential to the development of our study, but which, certainly, we ought not to ignore altogether. These are Speculative Trading and Insurance.

It must be manifest by this time that risk, the risk of loss, both physical and economic, is an ever-present element in economic life. There is constant danger that goods shall undergo physical destruction or deterioration, and danger that the value—the economic significance—of goods shall decline. Now these risks being ineradicable elements in economic life, individuals, or society as a whole, must in some way bear them. As has already been brought out again and again, a large number of the risks incident to productive activity are borne by the central figure in production, the entrepreneur. It has indeed been maintained by some writers that not only the entrepreneur's greatest, but his only, function is the assumption of the risk of production. The position on this point taken in the present text has been somewhat less extreme. We recognize that the assumption of the responsibility of production involves some other burdens as well as risk-taking, including some very general types of labor. Nevertheless it must be admitted that the chief part of the entrepreneur's task or function is to bear risk.

Again, as has been explained in other connections, risks are chiefly of two types: (1) those which regularly recur and so are calculable and (2) those of irregular nature which cannot be reduced to any law of recurrence. The entrepreneur's function in risk-bearing is especially connected with the second type. But he is not the only one who contributes to the

bearing of this burden. In fact, no economic person can be completely rid of it; and one person especially, the man who engages in speculative trading, shares in it very largely. Our first section, therefore, is given to an account of speculation or speculative trading.

1. Speculative Trading

The nature of speculation can best be realized by contrasting it with related functions and operations. As already noted, speculation is akin to the function of the entrepreneur in that it assumes non-calculable risks. It differs, however, in that it frequently divorces this assumption of risk from ownership; whereas the distinctive mark of the risk-bearing of the entrepreneur is that he assumes that burden by the process of *becoming* the *owner* of the goods. He assembles the various productive elements necessary for bringing a commodity into existence and accepts the responsibility from first to last, including the ownership of the products when completed. The speculator in the narrow sense does not necessarily do this; in fact, a very characteristic feature of his trading is the cutting apart of these two functions. Thus men who purchase wheat in large amounts and store it for sale at a future time commonly turn over to some one else the burden of bearing the risk of possible loss between the purchase and the sale of such wheat by selling against it other wheat for future delivery.

Again, speculative trading is distinguished from ordinary or so-called legitimate business in that it expects to make a profit out of *changes* in the prices of commodities in the same market; whereas ordinary trade expects to get its profit out of price *differences* in different markets. To illustrate, the speculator in wheat on the Chicago market buys wheat today expecting to sell it at a later date in the Chicago market when the price shall have advanced. He very likely sells to another person like himself who deals in the goods for the same purpose of making a profit through purchase and sale.

In contrast, the ordinary dealer in a product of wheat, say bread, expects to make his profit by being able to sell at a price slightly in advance of the price at which the baker sells it to him. It should perhaps be added that some admixture of speculative trading is often present in ordinary business or at any rate may be so present. Ordinary dealers of speculative temperament will every now and then load up with an unusually large stock of some commodity, the price of which, in their opinion, is likely to advance. This is in the strictest sense speculation, not what is commonly called legitimate business.

We have distinguished the risk-bearing of the speculator from that of the entrepreneur and his type of dealing from that of the ordinary trader. We need also to distinguish speculation from *gambling* with which it is often identified. Gambling, as pointed out in other connections, has, from the economic standpoint, this distinguishing mark: it involves the assumption of a *needless* risk. In many cases the risk is created for the occasion. For example, the gambler throws a pair of dice out of a box, betting on which side will turn up. On the other hand, gambling may take place in connection with chances which naturally exist, for example, in the outcome of some notable series of events, an election or a war. But although the chance is here of natural origin, the assumption of economic risk with respect to that chance is not of natural origin. It is entirely artificial. It is, for the moment, uncertain whether Mr. Wilson or Mr. Hughes will be elected; the uncertainty, the chance, is here anyhow; but I am not driven to assume any economic risk in connection with this uncertainty. In contrast with gambling, speculative trading not only involves inevitable uncertainty and chance, it also involves a necessary economic risk. The price of wheat may fall between September and March. In fact it is practically certain to change. No man experienced in such matters will anticipate the recurrence of precisely the same price six months from date. This element of uncertainty or chance

must necessarily entail loss to some one. If it should be a fall, the present owner will lose; if it should be a rise the persons who will need to purchase the wheat will inevitably lose. Speculation is, therefore, not gambling, but, within limits, the performance of a necessary economic function.

The most thoroughgoing forms of speculative trading are carried on in special markets, of which the wheat, cotton, and stock exchanges—called bourses on the continent of Europe—are the most conspicuous examples. These markets have as their most notable characteristics the following:

(a) Trading in common. The majority of the dealers taking part are brought together in one place at the same time; buyers competing with buyers and sellers with sellers. (b) Another characteristic is open-trading. There is no privacy as respects the dealings. The amounts, prices, and so on are at once announced and recorded by the proper officers. (c) The trading is through official dealers, brokers, as they are ordinarily called. (d) The dealings are usually on a very large scale.

(e) The major part of the trading is speculative. There is, of course, some selling by persons who have produced the goods and brought them to the market for disposal, and so there are some persons who have come to the market to buy for actual use outside. This last is illustrated by men in the milling district who purchase their wheat supply in large amounts, at these exchanges. But the major part of the dealings, probably more than 90 per cent. of them, are carried on by men who are engaged in speculation as such. By this is meant that they are not, if buyers, intending to make any use of the product, while if sellers, they are not producers or ordinary middlemen who are bringing the goods to market. What they are doing is attempting to make a gain, if buyers, by getting at one price and presently selling at a higher one. If sellers, they have already purchased at a low price and are now reaping the gain resulting from the advance. Or they may be selling for future delivery, agreeing to deliver the

goods at some future date, confident that they will be able to make the necessary purchases at the time of delivery at a lower price than that agreed upon.

(f) This last statement suggests another characteristic of *produce* speculative trading, namely, dealing in futures. By this is meant nothing more than contracting to deliver or to accept at some future time a quantity of goods at a price now agreed upon. Such contracts for future delivery are of course present in all lines of business. We order a suit of clothes, we order wood, or coal, to be delivered at some future time, the contractor orders structural steel and lumber in advance of the time when he will need it. But the future trading of the speculative market differs from these cases in that it is not something occasional, growing out of a special need of the consumer or producer, but is systematically and constantly entered into for the sake of the possible profits to be obtained, or for some other ends which will be explained in a moment.

It may contribute to our understanding of this matter to note some of the technique of the speculative market. As stated above, the dealers directly concerned in the processes of buying and selling are known as brokers, and they are constantly taking and fulfilling orders. (The brokers, however, are usually supposed to refrain from personal dealings, and to buy or sell only on the account of other persons.) The real dealer in the transaction is commonly some outside party, perhaps located in a remote city.

Some of the dealers on the market habitually deal with the expectation of making a profit from a rise in prices; that is, they buy today with the intention of selling later when prices have advanced. They are known as **bull** speculators, or simply bulls. In contrast, some dealers habitually anticipate and deal with an eye to a fall in prices. Such dealers sell for future delivery,—"go short," is the expression frequently used. They agree to deliver certain goods which they do not at the present moment own. Dealers of this type are known as bear speculators, or simply bears.

Human nature being what it is, the latter group is usually smaller than the former. On most stock exchanges, in this country at least, the rules require the delivery of the goods sold within twenty-four hours. By hypothesis, however, the dealer is not in possession of those goods. It, therefore, becomes necessary that he should borrow from those persons who do own the required stock. As a rule, he has no difficulty doing this because the owners are glad to be released of the burden of interest-bearing which ownership involves. Circumstances may arise, however, under which the demand for stock to deliver on short sales is so great that it is practically impossible to find enough stock to meet the emergency. The result is a crisis to the bears in which great sums are lost.

Another bit of technique of importance is the so-called **margins and marginal trading.** Everywhere in business life there is dealing on borrowed capital. Probably the majority of traders in all highly-developed countries, depend on the capital of other people for a considerable part of that which is needed in their business. They borrow outright from capitalists on personal notes, or they meet any particular bill from wholesalers by raising a special sum for that emergency. *Essentially* the case is no different in margin trading on exchange. That is, the purchaser wishes to buy five hundred shares of Pennsylvania stock and has not more than a tenth of the capital necessary to do so. He naturally desires to borrow the rest of the money needed from some one else. This is particularly easy in stock transactions or speculative transactions generally for the reason that the security is readily realized upon and very efficient machinery for facilitating the process has been built up. The man who wishes to make such a purchase, therefore, deposits with his broker that portion of the purchase price which he himself expects to pay, authorizing the broker to borrow the rest of the money needed. The sum which he deposits with his broker to cover his part of the money advanced is called a margin and trading of this type is known as marginal trading.

As explained above, this borrowing is in essence no different from borrowing in other lines of business. In practice, however, it is a more dangerous type. This is partly, of course, due to the more dangerous character of the business. In addition, the facilities given tempt dealers to go into the speculation on a much larger scale than their own capital will warrant. It is always provided that the broker can dispose of the stock he holds as security for the loan whenever his client fails to maintain his margin, and this of course makes that broker perfectly willing to lend to the limit of reasonableness.

The last remark suggests two or three other technical phrases employed in speculative trading. To keep up one's margin is to send in more money if at any time the change in the value of the stock makes the previous margin inadequate. So when the broker realizes on the loan he has made by selling the stock of his client he is said to *close him out.*

We have seen that speculation is one of the several methods by which the risk burden incident to all economic life is borne.* And this risk-bearing naturally would be thought of as the primary function of speculation. A second, perhaps equally important function is *maintaining conditions for the determination of the right price.* Let us now consider more carefully these two functions in detail.

The way in which speculation carries out its primary function of assuming the burden of risk-bearing is best illustrated in the wheat business. As already remarked, it is inevitable that there should be losses unmerited and gains unmerited from changes in the price of any commodity from one part of the year to another. Further, there will be persons in the community who are not fit to assume this burden, although so situated that they will be forced to do so unless some device is created whereby the burden can be unloaded. Thus, millers must have wheat, and they must buy it considerably in advance of the time when they can market the flour

* From the standpoint of society at large it is a cheap and efficient method of bearing these risks.

made from that wheat. But in the interim the price of wheat may fall greatly and as a result the price of flour will fall. The millers will therefore be liable to a serious loss growing out of this possible change in prices.

It might be argued that this is only one of the inevitable burdens of their particular function in industrial life and so they ought to bear it without murmur. A very characteristic feature, however, of modern industrial life is extreme specialization,—the working out of devices whereby the different burdens of productive activity can be separated and assigned to different agents. Now the miller has as his primary function the *turning of wheat into flour.* It is his performance of this service that entitles him to a living. He has no ambition to speculate in wheat as such, to make a living by *dealing in this commodity* so subject to changing prices. He would therefore be glad to utilize some device whereby this part of the burden would be thrown onto some one else.

The wheat exchange fills his need exactly. He wishes to buy, let us say, ten thousand bushels of wheat to be turned into flour in the course of the next few months. Accordingly, he gives an order to a broker on the Chicago exchange for that amount of cash wheat, that is, of wheat to be delivered at once. At the same time he orders the broker to sell for *future delivery* at the date when he expects to have his flour ready for the market, ten thousand bushels of wheat,—the price being fixed at the present moment, in relation to the present price of cash wheat. In the fall of the year this will mean a higher price for future deliveries because of the cost of storing, insurance and interest on the investment. Now when the future period comes he will get for the ten thousand bushels of wheat the price agreed upon anyhow. If, in order to meet this sale that he has made, he has to pay a higher price than was anticipated, he loses on the deal, but makes a corresponding amount from the advance of his flour. On the other hand, if at that time he is able to buy in the wheat for delivery at a lower price, he gains on this future deal, but loses

on the flour which has fallen because of the fall of wheat. In short, the net resultant of the whole transaction is that he neither gains nor loses by changes in the price of wheat. He is thus limited to what he calls legitimate business, the milling business, the turning of wheat into flour. Out of that he makes his living and leaves other people to speculate in wheat. It will contribute to a better understanding of this explanation to follow an imaginary transaction in detail.

Let us suppose that our milling company sets out to supply itself with wheat at a time when that grain is quoted for immediate delivery at $1 and for future delivery at $1.04. Our problem, then, is to determine by experiment what the result will be when the transaction is quite ended for each of the different possibilities as to the price actually prevailing when the future deal is consummated. Manifestly, these possibilities will be covered by three hypotheses: a price at the future date exactly equal to the expected one, $1.04; any price higher than the expected one, say, $1.10; and any price lower than $1.04, say, $.90. The three tables following give the results for these three hypotheses in their order. Each time the net result is neither gain nor loss.

TABLE 1

Cash Wheat		Future	
Original cost	$10,000	Cost	$10,400
Storage, insurance, etc.	400		
Total cost	$10,400		
Value	10,400	Selling value	10,400
Gain or loss	$00,000	Gain or loss	$00,000

TABLE 2

Cash Wheat		Future	
Total cost	$10,400	Cost	$11,000
Value	11,000	Selling value	10,400
Gain	$ 600	Loss	$ 600

TABLE 3

Cash Wheat		Future	
Total cost	$10,400	Cost	$ 9,000
Value	9,000	Selling value	10,400
Loss	$ 1,400	Gain	$ 1,400

Illustrative Problems

A Liverpool miller buys through a Dutch commission house 30,000 bushels of wheat, paying 93 cents a bushel, and at the same time sells 30,000 bushels for May delivery, the price being 95½ cents.

(a) Assuming that 2½ cents covers the cost, (storage, insurance, and interest) of carrying the wheat from the date of purchase till May, show that the miller will lose nothing on the wheat even if by May the price should fall to 70 cents.

(b) Would he gain if the price should rise to $1.10? Prove.

(c) What did the word "carrying" in the second sentence of the problem mean?

We have explained the primary, central function of speculation, the assumption of the risk burden of a particular type of economic activity. The second of the two functions mentioned above—*working out a proper price*—must be commented upon briefly. As already so often remarked, price is the pre-eminent regulative mechanism of the present economic order. And we mean by *right price* that price which will regulate economic activity in accord with the demands of the situation as a whole. Now it is manifestly of the utmost importance that the right price should prevail. If there is likely to be a diminution of the acreage put into wheat because of the outbreak of the great war it is highly important that something should happen to induce countries unaffected by the war to increase the amount of wheat which they raise. But of course nothing can contribute so effectively to this result as an advance in the price of wheat, and that an early

advance. But again nothing can so surely bring about this much-needed result as the efficient working of a great speculative market.

In these great markets we have a large number of competing dealers on both sides, men of exceptional capacity, keenness, and knowledge, furnished with every facility for getting information regarding the probabilities of demand and production in all parts of the world. In consequence, if there is good reason to believe that prices should naturally change, that the conditions of demand and supply will create in the near future a much higher price, that higher price is likely to be brought into existence much sooner, much more completely than without such a market. This was exactly what happened in the summer of 1914 at the outbreak of the great War. It happened again in the summer of 1916 when the failure of the processes was in prospect, and it was just what ought to have happened, although it was constantly misinterpreted and lamented by men of affairs thoroughly unfamiliar with the working of economic laws. The sharp advance in the price of wheat meant that the farmers who could produce winter wheat, which has to be sown in the fall of the year, would promptly improve their opportunity, would proceed to increase the acreage as rapidly as possible. A rise in price which had waited for months till after the consumer began to feel it clearly, would have been too late to bring the needed result. An advance in price brought about early, before any but the trained and well-informed speculator could anticipate the whole result, was just the thing which the situation called for.

2. Insurance: Its Nature and Functions

The essential nature of insurance consists in the pooling, putting into one mass, of a large number of risks. In other words, the many persons interested act, for this particular purpose, as if they constituted just one person. Thus, if the individual owners of a thousand houses desire to insure

themselves against loss by fire, they proceed to act in the matter as if all the houses were owned by them as a group. If any house burns down, the group replaces it by contributions raised from all members of the group. Otherwise the houses are treated as if owned by individuals, but in this respect they are treated as if owned by the group.

Now the *function* of this economic activity, this industry, if you please, is readily seen by considering the advantage derived from the practice indicated. If, in the illustration, we suppose each house to be worth $2,000, then without such pooling as insurance provides, the burning of one of these houses would mean a *total* loss to the owner, a loss of $2,000. On the other hand, if pooling takes place, the result of the fire is that each owner loses $2. The advantage of such a procedure, supposing only a few houses burn down, is manifest. Each owner is, indeed, obliged to lose something. But this amount is quite small and in exchange for it he is saved from the risk of losing his whole $2,000. In other words, the individual's advantage from insurance may be summarized as the substitution of a series of small, though certain, losses for the chance of a great loss.* But this means that insurance makes less burdensome to the individual the risk incident to economic ownership. Accordingly, the function of insurance is to secure the *easier bearing of risk.*

The preceding account seemed to deal only with what is called mutual insurance,—insurance in which the parties insured are responsible for the procedure, manage the whole business. But most insurance, as we know, is not technically of this character. Instead, it is undertaken by a great corporation which "sells" insurance, as the agent would say, as other corporations sell gas or electrcity. Has our account covered this case? Surely, yes. In essence, all insurance is

* This surely is a social as well as individual advantage. The strain upon industry, the loss of efficiency due to the falling of a great loss upon a single individual is much greater than that of a trifling loss experienced by many individuals.

mutual. The fund from which the company makes good the losses to householders whose houses burn in reality comes not from the company but from all the householders. If these were not making regular payments adequate to cover the total losses of the group, the company would have nothing to pay. The only difference between this case and that of strict mutual insurance is one of management, procedure. In the latter, the insured householders organize to manage the business themselves, accepting all the responsibilities and burdens. In the former case, speculative insurance it is often called, a corporate entrepreneur undertakes to carry out the plan, assume all the responsibilities, and do the necessary work. The essence of the matter is as before the pooling of risks, the acting as one owner in respect to the burden of ownership.

It should be said also that while the foregoing account of insurance dealt only with loss from fire, an exactly similar analysis would fit the case for insurance against any type of economic loss, for example, cyclone, shipwreck, collision, etc.

The last remark suggests that we need some comment on the question: Under what conditions is the insurance principle, the principle of pooling risks in order to diminish their economic burden applicable? The answer is this: the insurance principle can be used wherever risks are fairly *calculable.* If we can prove statistically that, when any large body of losses are taken together, the per cent. of loss is only moderately high, and fairly regular, insurance is feasible. Doubtless this is a somewhat vague rule; but it has answered in the building up of great businesses. With the improvements in statistical art, and the enlargement of the pools, it has been possible to extend the operation of this industry more and more widely; and doubtless we have not yet seen the end of its development.

Thus far we have had in mind only insurance against direct loss, for example, fire insurance, cyclone insurance, burglar insurance. But the student is aware that very im-

portant forms of insurance are so-called *life* and *endowment* insurance. Are these to be explained in the same way? In the main, yes. In one respect, however, they obviously differ from the cases already considered. The payments made to the insured or his family are not intended to cover losses incurred. They rather represent savings, accumulations of capital, which he has made or is treated as having made. The payments which the insured makes to the officers of the association or company—premiums—consist, in the cases already considered, of two parts, (1) a real insurance premium, his share of the losses incurred, and (2) his share of the costs of carrying on the business. In life or endowment insurance, the major part of the payment is different from either of these. It is *savings deposit,* money accumulated and placed in the hands of the company as if it were a savings bank. The insurance element in his payments is so much as is needed to cover the risk that he will not live and pay long enough to accumulate the full amount he has set out to pay and for which he is insured. The insuring company or association is concerned with knowing how many payments he is likely to make,—which is usually the same as saying how many years he will live. Their statistics concern the average longevity of men in his class; the statistics of the companies concerned in fire insurance concern the probable number of houses of certain types which will burn in a given period.

Within the memory of people still living, not a few persons of intelligence and standing were wont to look on insurance, particularly life insurance, as a form of gambling. What has been said ought to convince us of the unsoundness of this opinion. Insurance manifestly performs a very real service. It does easily and cheaply *something which must be done.* Risk cannot be eliminated from economic relations. It must be borne. Our only freedom of choice concerns the *method* of bearing it. Insurance is surely the best one yet devised.

The remarks of the last paragraph suggest the true distinction between gambling and legitimate risk-bearing. The

distinctive mark of gambling is not, as is often fancied, the taking of chances, the assumption of risk. Such taking of chances is often quite unavoidable, and so, of course, there can be nothing wrong about it. The really vital thing about gambling is that it assumes risks which are needless. The game will be won or lost. Our staking ten dollars upon the result is wholly unnecessary and will contribute nothing to the determination of the result. If, then, we act in this way, we wantonly assume an economic risk which can be avoided and the assumption of which is not a condition precedent to the accomplishment of any social advantage.*

Illustrative Problems

1. Suppose 1,000 owners of 1,000 buildings worth each $7,000 wish to insure themselves against fire. If the risk for the class of buildings involved is such that 7 out of 1,000 burn down each year, what annual payment from each owner would be necessary to insure all against total loss,—expenses of management, interest, etc., being ignored?

2. Suppose 1,000 persons propose each to save for his family before his death, $2,000. All are twenty-five years of age. Knowing that anyone is liable to die before he has had time to save so much, they combine to insure one another that $2,000 shall be ready for the family even if death comes before that sum has been regularly accumulated. Assuming that the organization is continuous, new members joining as old ones pass away, and, assuming the average death rate to be 18 in 1,000, what annual payment would each one need to make,—expenses of management, interest, etc., being ignored?

3. Suppose that a certain corporation owns 500 buildings worth each $100,000; that to insure in an ordinary com-

* In one notable case, the spirit and even the practice of gambling has not been kept out of connection with legitimate insurance. This is the great Marine Insurance Association known as Lloyds of London. Here men are able to put up bets on any conceivable event without any admixture of necessity or social gain to make it a legitimate economic operation.

pany would cost the corporation $250 a year on each building; and that the corporation is convinced that by the expenditure of $10,000 the fire loss can be reduced to an average of one building every three years. Under these conditions, would it pay the corporation to insure with some company? Prove.

CHAPTER XXII

PRINCIPLES GOVERNING THE MONEY STANDARD

The preceding chapter brought to a conclusion our discussion of that broad division of Economics known as Exchange. Before finally dismissing this subject, however, we shall find it useful to give some further attention to the study of Money. Money, as we know, is the medium of exchange; and as preliminary to the treatment of exchange, we set forth in Chapter XII some of the more simple and obvious truths concerning Money. But now, with a thorough study of Exchange as a whole behind us, it becomes possible, as also necessary and proper, to make a deeper investigation of the medium by which it is conducted, and to present the more essential principles governing that medium. In this chapter we take up the principles governing the money standard.

The monetary standard, the student will remember, is that something which fixes the significance or value of the money unit. Thus in the United States, 25.8 grains of gold, nine-tenths fine, fixes the value of the dollar;—whatever value may at any time attach to 25.8 grains of gold, that same value will attach to one dollar. Now this very definition shows that the monetary standard is, in an important sense, the foundation of the whole system, and that a change from one standard to another, or even mere liability to change, may carry with it the threat of serious harm. Further, experience has shown that it is by no means an easy task to insure that such changes will not take place. The monetary standard has many times been displaced in spite of the utmost preventive efforts a government could make; and, in fact, governments themselves have more than once through mistaken legislation inadvertently brought about the very displacement which they

were trying to avoid. Manifestly, then, it is quite important that we should know the natural laws which concern the monetary standard in order that we may be able rightly to manage that standard.

These principles may be grouped in two classes: (1) those concerned with the immediate standard, *standard money,* which directly, immediately, fixes the value of the money unit. and (2) those concerned with the *ultimate standard* or the something which fixes the value of standard money itself, and, in doing so, finally fixes the value of the money unit.*

The first principle to be laid down with respect to standard money is the following:

Principle I. *The standard money of any system must be a money which is at par and which has its value fixed independently of its relations to other moneys.*

The proposition that standard money must be a money which is at par is hardly more than a corollary from the definition of standard money. Standard money is the *immediate standard* of the system, the money which immediately determines what the money unit is worth. To it, the money unit is anchored. Its value is the value given to the unit. But, plainly, we cannot say of a given money that it fixes the value of the money unit unless a unit of that money has the same value as the money unit it is said to fix. Thus we cannot regard gold coin as the standard money of the United States if we find that ten-dollar gold pieces are worth eleven dollars each; for, in that situation, some other money worth ten-elevenths as much as gold must really be fixing the value of one dollar. No money which has a value above or below the value of the unit can be fixing the value of that unit.

We have just seen that the standard money must be one which is at par. But we commonly find two or more moneys

* See pages 147, 148.

fulfilling this condition,—and which one of the moneys at par will then be standard? This question is answered by the second part of our principle. The standard money is that one of the par moneys which has its *value fixed independently* of the other moneys. In most cases the soundness of this contention is evident enough. Thus, in our system, gold coin is firmly anchored to the metal contained in it,—has its value fixed by that metal quite without regard to the values of the other moneys. On the other hand, the values of treasury notes, bank notes, and small silver have no sort of relation to the value of the material in them, but are all the time kept equal to that of gold coin by being kept all the time directly or indirectly *exchangeable* for gold coin. Manifestly, then, as between gold coin and the other moneys named, the former is the standard: it is the thing which *determines;* they are things which *are determined.*

The case of a par money which is not kept either directly or indirectly convertible with gold coin is not so plain; but the conclusion must be the same. Such a case is illustrated in most countries by small silver which is not redeemable,* and, in this country, by silver dollars. No institution is bound to redeem these coins in gold or its equivalent.† Further, the metal in the coins is much less valuable than gold coin, and is changing in value every day. Yet all the time these silver coins remain just equal in value to gold coin. Just why they do so is a problem with which we are not here concerned. Here we are asking: Which of these two is standard money? Which is principal and which subordinate? Which determines and which is determined? Surely there can be but one answer. The gold coin is fixed in its position, being anchored to the metal it contains, while the silver coin, showing no

*It is redeemable in this country.

† The United States Treasury would probably undertake to do so, if they became less valuable than gold.

constant relation to the metal in it, is free to move. Hence, unless their equality of value is to be attributed to mere coincidence, and surely this is out of the question, we must conclude that the value of the silver coin adjusts itself to that of the gold coin,—*is determined by that of the gold coin.* Gold coin, therefore, *the money which has its value independently determined,* is the standard money.

Illustrative Problems

1. In the United States in 1870, gold coin was worth $1.21 per dollar, silver coin $1.23 per dollar, and greenbacks $1.00 per dollar. Which, if any, must have been standard money?

2. For several weeks during the panic of 1837 coined money, whether silver or gold, was at a premium of from 2 to 4 per cent, while bank notes were at par. Which, if any, must have been standard money?

3. Add to the first problem that in 1870 national bank notes were worth $1.00 per dollar and were redeemable in greenbacks. Which money, under this condition, must have been standard money?

4. Supposing that all kinds of money are at a premium, only bank credit in the form of checks being at par, what then would be standard money or the immediate standard?

Our first principle has given us little more than a rule for recognizing standard money, for ascertaining which money is the standard. The second gives us one of the most important laws *determining* the standard, deciding what money the standard must be.

Principle II. *If, among those moneys in any system which are a valid tender in the payment of debts, differences of exchange value arise, the cheapest of such valid tender moneys establishes itself as the standard money, and the rest go to a premium.*

A good illustration of this principle is found in the monetary history of 1870. At that time paper money, gold coin, and silver coin showed differences in value, measured in paper, as follows: Gold was worth 21 cents more than paper, and silver was worth 2 cents more than gold. These differences could have manifested themselves in any one of at least three ways: (1) paper might have been quoted at $1, gold at $1.21, and silver at $1.23, or (2) gold might have been quoted at $1, silver at $1.02, and paper at $.82; or (3) silver might have been quoted at $1, gold at $.98 and paper at $.81. If the first hypothesis had been realized, it can be seen by reference to Principle I that paper would have been the standard; if, instead, the second hypothesis had been realized, gold would have been the standard; finally, if the third hypothesis, silver would have been the standard. In fact, the first hypothesis was realized; and the natural law which insured that it would be is the one stated in our second principle. The cheapest of these legal tenders was bound to establish itself against the rest.

The proof of this principle is relatively simple. By hypothesis all the moneys in question are valid tenders for debts. Under that condition which will be the standard money for debts? If I have a right to pay my debts with either of two moneys one of which is worth three cents more than the other, which will I naturally choose? The cheaper, of course. And what I would naturally do, experience proves that debtors generally do. It follows then that the cheapest of two or more valid tenders will be the standard money of *debts*.

Secondly, for the sake of convenience in business transactions *the standard money of debts and that of prices must, if possible, be the same*. One can imagine the inexpediency of having in business one meaning for the dollar in debts, and another for the dollar in prices. A grocer fixing the prices of his goods in one kind of dollar, while his note to the jobber was in another sort of dollar, would meet serious inconven-

iences; so he surely would not conduct business in this way unless obliged to. But, thirdly, he will not be obliged to do this, because the standard money for debts and the standard money for prices naturally draw together and become one. The standard money of debts is fixed by natural law as the cheapest of all the valid tenders, and this result men cannot change, save under very exceptional circumstances. But the standard money of prices, on the other hand, is determined wholly by the choice of the individual dealer. He may freely rate his goods in gold dollars or silver dollars, or greenback dollars, or even pounds or marks if he desires. It is accordingly *possible* for the standard money of prices to adjust itself to the standard money of debts; and since, as we have already seen, such an adjustment is for business reasons highly desirable, it will inevitably be brought about. In a word, the cheapest of the valid tenders becomes not only the standard for debts but also the standard for prices—the standard money in general.

Three special applications of the principle just established give us three corollaries of that principle which have played a part of very great importance in the monetary history of modern times. Those corollaries are as follows:

Corollary 1. *If two metallic moneys are freely coined and full legal tender at a coinage ratio different from the market ratio, the money coined from the overrated metal will establish itself as the standard money.*

Corollary 2. *If, in the case of a legal tender circulating note which has hitherto been kept redeemable in what has hitherto been standard money, a suspension of payments takes place, such legal tender note will almost certainly establish itself as standard money.*

Corollary 3. *If any form of credit money or money substitute ceases to be redeemable in standard money or its equiv-*

alent, and, though not a true legal tender, is made in effect a valid tender in payment of debts by any set of circumstances, such money or money substitute will for the time being usurp the place of standard money.

To illustrate the first of these corollaries, suppose that, when 1 ounce of gold is worth on the market 16 ounces of silver, the government mint treats 1 ounce of gold as worth only 15 ounces of silver, putting into each silver coin less metal than is needed, considering the market value of the two metals. The mint thus treats silver as worth more than it really is; in technical language, it *overrates* silver. Under these conditions, each silver coin will be worth less—it will be cheaper money—than the corresponding gold coin. Hence it follows from Principle II that the silver coin will assume the place of standard money.

The second corollary, relating to the behavior of legal tender circulating notes, offers no serious difficulty. So long as such notes are kept redeemable in standard money, they of course will be worth as much as standard money. When, however, the issuer of the notes suspends payment on them, their value inevitably declines, because, although people may expect them to be again made redeemable at some future time, they are not willing to give as much for a probable future payment as for a certain present one. But when notes with the faculty of legal tender become less valuable than the money which has hitherto been standard money, this fact brings into operation Principle II,—that is, these notes displace the money hitherto standard, and themselves usurp its office.

The circumstance alluded to in the third corollary has repeatedly arisen in our history when a concerted suspension of payment on their notes by practically all banks has led the general public by tacit consent to treat those notes as a valid tender for debts. As a result, the notes behaved as if they were a true legal tender: in other words, Corollary 2 was brought into operation.

In a similar way, bank credit, deposit currency, as it is often called, has more than once been made the standard money by a concerted refusal of banks to pay in *any* form of money. At such times, the public has come to accept bank credit as a valid tender for debts, thus making bank credit the immediate standard, while all forms of money proper went to a premium.

Illustrative Problems

1. In the United States in 1830, both gold and silver were freely coined at a ratio of 15 to 1, when the market ratio was 15.8 to 1.

(a) Which metal did the mint overrate? Explain carefully.

(b) Which of the two moneys, if any, must have been standard money?

2. In 1830 France had a system similar to ours but its ratio was 15.5 to 1.

Answer the same questions for it, as for the United States under 1.

3. Why did the United States have the greenback as its standard money between 1862 and 1879?

4. In 1717 the British government decreed that a gold guinea should be treated as the equivalent of 21 silver shillings; though, judged by the bullion in them, the guinea was worth 20½ shillings. Which must have become standard money? Explain.

4. In 1717 the British government decreed that a gold guinea should be treated as the equivalent of 21 silver shillings; though, judged by the bullion in them, the guinea was worth 20½ shillings. Which must have become standard money? Explain.

In the panic weeks of 1837, bank notes were the standard money. (See Problem 2, page 353.) How do you explain it?

Thus far our discussion has been concerned with standard money and the laws governing it. Two other principles of considerable importance have to do with defining and deter-

mining the *ultimate standard*. The first of these is the following:

Principle III. *If by any process whatsoever the standard money is kept constantly equal in value to a definite quantity of some outside commodity or group of commodities, such commodity or group of commodities constitutes the ultimate standard of the system.*

This principle can perhaps be best illustrated by imagining a system in which there was no metallic money, some kind of paper money being the standard money, but in which that paper money was all the time kept equal in value to a certain amount of gold or silver or some other outside substance. In such a system, the principle tells us, the gold or silver or other outside substance to which the standard money was kept equal in value would constitute the ultimate standard.

As a matter of fact, this particular method of realizing the condition indicated in our principle is not actually employed, though some very able economists have favored it. The plan generally pursued is to have, as our standard money, coins made of the very metal which we wish to use for our standard, in our own case, gold. These coins we keep equal in value to the quantity of gold (25.8 grains) desired for our ultimate standard by maintaining two conditions which insure this result: (1) the metal gold has *free and gratuitous coinage*—the mint must turn into coin of full weight without substantial charge whatever gold is offered; and (2) under ordinary conditions, *free melting* of gold coin is permitted. When these conditions are realized, it is plainly impossible that the coin and the metal, being practically interconvertible, should have different values. No one would give more for the coin than for the metal, since he could have that metal turned into coin without charge; so he would not give more for the metal than for the coin, since he could at will turn the coin into the metal by melting it.

In the above illustration of our principle, we supposed that a certain amount of gold was chosen as the ultimate standard. But, of course, some other metal, for example silver, may be chosen, or something not a metal, say, wheat, or a group of things made up of many items: a ton of coal plus 10 yards of cotton plus 100 pounds of flour, etc., etc. A standard of the latter sort has been advocated by many able men and is commonly known as a *multiple standard*. But, whatever the particular thing or things chosen, the idea is the same: if there is something outside the standard money which fixes the value of that standard money, that something is the ultimate standard.

The principle needs little argument to establish its truth, since it is little more than a corollary from the definition of the ultimate standard. The ultimate standard is the something behind the immediate standard, standard money, which *finally determines* the value of that money, just as that standard money determines the value of the money unit. Now, it can hardly be doubted that the gold or silver or wheat or list of goods used in our illustrations answers to this definition of the ultimate standard. First, by hypothesis, the standard money is kept equal to such gold or silver or wheat; and so, the latter is, in some sense, standard. Secondly, since this gold or silver or wheat is not, in turn, dependent on something else for its value, such gold or silver or wheat constitutes the final, ultimate, standard.

Perhaps a doubt may still linger in the student's mind. "It is plain that the value of our standard money, gold coin, and the value of the gold metal in that coin are equal. But are we sure that the value of the metal fixes the value of the coin rather than the reverse? Surely, gold as a metal has its value influenced by the value of the gold money." The last statement is no doubt correct: the value of the money influences that of the metal just as truly as the value of the metal influences that of the money. Nevertheless, one of these, the metal, must

be looked on as, in the more ultimate sense, a determinant. The gold coin of any one country constitutes only a small fraction of the total gold coin of the world, and a still smaller fraction of the total gold metal—coin, articles made of gold and gold bullion. Conditions tending to bring about a change in the money of a particular country independently of the gold stock of the world must, of course, tend to exercise some influence on the value of that gold stock. But, after all, the small fraction cannot be credited with determining the value of the whole. The total gold stock must have a value resulting from the action of numberless other forces as well as the causes which influence the value of the money of a single country; and, to the value of the total gold stock as thus determined, the value of the gold coin of any particular country must tend to gravitate. As long as the money unit of a country is kept equal in value to a certain quantity of the metal gold, that *metal* must be recognized as *the truly ultimate standard*.

Illustrative Problems

1. A few years ago, the United States remodeled the monetary system of the Philippines, making silver pesos coined only for the government the standard money, but providing that gold exchange on New York should be sold to any person wanting it in exchange for silver pesos at a rate of $1 for two pesos. Such a system tended to establish what ultimate money standard in the Philippines?

2. Great Britain puts into every sovereign 113 grains of pure gold, coins these sovereigns for every one free of charge, and does not attempt to hinder the melting of coins. Under these conditions what necessarily becomes the ultimate standard of Great Britain? Explain fully.

3. What must have been the ultimate standard of the United States in 1830? See Problem 1, page 357.

4. What must have been the ultimate standard of France at the same date? See Problem 2, same page.

Our second principle with respect to the ultimate standard has to do with a situation where the standard money is itself the ultimate standard. Prior to 1893 British India had as its ultimate money standard 180 grains of silver; that is, the unit coin, the rupee, contained 180 grains of silver and was freely coined, thus making the metal itself the ultimate determinant of the value of the rupee. But, in the year named, the government stopped the free coinage of silver with the result that coins rose in value as compared with the metal in them, fluctuating from 32 cents down towards, but never to, their bullion value, 22 cents. Thus the silver rupee had nothing behind it to fix its value—it moved up and down independently of anything else. Accordingly, the silver rupee fixed the value of the unit (the rupee) not only immediately *but also ultimately;* and hence was itself the ultimate standard. This illustration alone would seem to furnish sufficient proof of the following principle:

Principle IV. *If the standard money is not kept constantly equal in value to a fixed quantity of some commodity or group of commodities outside itself, but varies in value independently of the variations of any other object, then such standard money is itself the ultimate standard of the system.*

Illustrative Problems

1. What was the ultimate standard of the United States between 1862 and 1879? Explain.

2. What was the ultimate standard of the United States during the panic weeks of 1837. See problem 2, page 353.

3. Suppose that after 1893 the government of British India had so managed things as to keep gold exchange on London constantly at 20 rupees for 1 sovereign (123.27 grains of gold). What would then have been practically the ultimate standard of India?

CHAPTER XXIII

PRINCIPLES GOVERNING THE CIRCULATION OF MONEY

The second group of principles under our present subject concern the *circulation* of money—the capacity of money to form a part of the monetary stock, the active medium of exchange. Will a particular money circulate at all? What kinds of money have the greater capacity for circulating—the greater tenacity in circulation? To what part of the circulation is a particular kind of money likely to gravitate? Will it tend to be used in the ordinary business of exchanging commodities or will it more probably lie most of the time in the banks serving the purpose of a reserve fund?

These and other related questions are of importance because a government may in one case find it desirable to keep a particular money in circulation; or in another case to drive a particular money out of circulation; or in still another to keep a particular kind of money down to a small stock, though not driving it out altogether; or again to segregate a particular kind of money in some special part of the system. A government may, I say, at some time desire to do any of these things; but it can no more accomplish its desire by merely decreeing such a result than it can bridge a river by that process. The circulation of money is ruled by natural laws; and a government can accomplish its objects in that field only by establishing such conditions that the natural laws which rule the circulation will automatically work out the results desired. It is of prime importance, therefore, that we should be familiar with the more influential of these natural laws.

The first principle which we shall lay down runs as follows:

Principle I. *Under modern conditions, the full and continuous circulation of any kind of money in almost any country of high commercial development requires a measure of legal authorization from the government of that country.*

The most decisive proof of this principle is to be found in the fact that, in all but very exceptional cases, the circulation of a money is limited to the country where it is legally authorized. Even nations lying geographically side by side, closely connected in industry and commerce and using the same monetary standard and the same system of denominations,—even such nations do not usually circulate each other's money save along the border. Thus, despite the proximity and the intimate relations of Canada and the United States, Canadian money has no currency in this country outside Detroit, Buffalo, and a few other similarly situated places.

This connection between the circulation of a money and its legal authorization by the home government is, of course, no mere accident. From early times governments have been wont to issue the money of their respective countries; so that now, habit, if nothing more, would make the public chary of accepting any medium of exchange not authorized by government. Further, authorization by a government creates a presumption that that government will make some effort to insure the goodness of the money authorized. Such moneys, therefore, will naturally be more readily accepted in ordinary transactions than money which has nothing but private backing. Again, as between a money authorized by one's own government and one authorized by the government of some other country, men will naturally have more confidence in that authorized by their own. Finally, the government itself will usually discriminate against foreign moneys in certain relations, for example, in determining what shall be receiv-

able for public dues or what shall be a legal tender for debts. This public discrimination will exercise more or less compulsion on private persons to take a similar attitude.

We have seen that the power of a money to circulate usually depends on some degree of governmental recognition. Our next principle puts this case somewhat more strongly.

Principle II. *Under modern conditions, the power of any money to hold its place in the circulation in the fullest sense varies as* the extent to which it is given power to do the different kinds of money work.*

Thus, a money which will not be accepted by the government in payment of taxes or which cannot be used as bank reserves will have less tenacity in circulation than a money which enjoys these prerogatives. In part, evidently, the capacity of a money to circulate depends upon the willingness of people to accept it in return for commodities and services. But some persons, anyhow, will need to use a part of the money, received in exchange for their goods, for the purposes indicated,—to pay taxes and maintain reserves. They will, therefore, hesitate to accept, or perhaps absolutely refuse to accept, money which cannot be utilized for these purposes. Further, if the money is one which they are not really free to reject in trade, they may yet be free, as in the case of the circulating notes of a bank, to return it to the issuer, getting in exchange some money which possesses the prerogatives lacking in the one in question. This course they are likely to take, and, in so doing, they put such money out of circulation.

An obvious inference from the principle is that, if we wish to diminish the tenacity in circulation of any money, we can

*Remember that in Economics "to vary directly as" means only to vary in the same direction, not proportionately, and to "vary inversely as" means only to vary in the opposite direction, *not proportionately.*

usually do so by depriving it of some prerogative;*—refusing to receive it for taxes, forbidding its use as bank reserves, or prohibiting bankers who receive it from paying it out over the counter.

The two principles just set forth affirm that moneys of superior quality—those having recognition by the government and possessing all money prerogatives—remain more persistently in circulation than inferior moneys. We have now to remark on a principle which seems almost in flat contradiction of these. It affirms that inferior moneys have greater power in circulation. The formula "bad money drives out good", commonly known as Gresham's Law, is the one most in vogue. As thus stated, the doctrine was always inexact; and, however stated, it is now true to a much smaller degree than in earlier times. Perhaps the facts are fairly well covered in the following:

Principle III. *Moneys which are inferior in respect to exchange or substance value commonly show greater tenacity in circulation than those which are superior in these respects.*

The truth of this principle has been amply confirmed in monetary history,—in fact, the principle is one of the few in economic science which have been accepted primarily as inductions from experience. Its explanation is easily found in the causes at work. The chief of these causes is the fact that, in the circulation proper—the use of money in actual exchange transactions—the superiority or inferiority of different kinds of moneys shows relatively little; whereas in various other uses, less strictly belonging to the circulation proper, or even quite outside the field of money, the superiority or inferiority shows relatively much.

Take first the case of standard metallic money,—gold coin in our system. Coins short in weight have no difficulty passing

*This must be qualified by a consideration of the principle about to be commented upon.

in trade. Only a careful test would prove that they are actually short; and this test few people in the hurry of business care to make. Further, most people assume that, even if a coin is really short, no trouble will be experienced in passing it on to someone else. In active circulation, then, inferior coins serve as well as any. But not so in other relations. If a jeweler wishes to melt a gold coin to get the metal for use in his trade, he naturally chooses a ten dollar piece of full weight, 258 grains, rather than one weighing somewhat less, say, 240 grains. The same is of course true of the exchange dealer who has occasion to send gold abroad in covering his drafts. Again, the peculiar position of the banker strengthens in another way the tendency of short weight coins to stay in circulation. Governments and other institutions to which the banker makes payments will discriminate against inferior coins, so that, to save himself a loss, he must refuse to receive them except at a discount. But depositors, in turn, anxious to escape this discount, studiously avoid presenting such coins for deposit,—instead, keeping them for their own use in trade, while they take to the bank full weight coin or other par money.

The illustration just used concerns standard metallic moneys which show differences in *substance* value as well as in exchange value. But paper moneys, which differ in *exchange* value only, submit easily to the same principle. Thus, prior to 1863, the bank notes of this country issued by all sorts of institutions and under all sorts of conditions, circulated at different values measured in standard money, some worth 100 cents on the dollar, some worth 95, some 92, some 97. Of these notes the best ones usually showed less capacity to hold their place in the circulation than the inferior ones. Their acceptability in ordinary trade was not, indeed, as good as that of gold coin which was only a little inferior in weight. But, assisted by the ignorance of people in general, by the indisposition of tradesmen to displease customers by challenging money offered for goods, and by the anxiety of workingmen to keep their jobs, anyone who held such money could easily pass it

on at a value greater than that recognized by banks and other dealers in exchange.

On the other hand, the inferior notes were received at banks and public institutions only at a full discount. Accordingly, they were not taken in for deposit, but were sorted out for use in trade, while notes of the better grades went in. Further, the institutions in question, desiring to make room for their own notes, and to accumulate only moneys which would be useful as reserves, made a practice of sending home for redemption all the foreign notes they received; hence, the fact that the ones they received were chiefly the better ones, resulted directly in driving these better ones out of circulation. Thus, there were at work not only forces tending to choose the inferior moneys for the circulation proper, but also forces tending positively to drive the superior out.

It perhaps ought to be added that, even when the inferiority or superiority among moneys, is not openly recognized, though admitted by the initiated, the inferior is likely to show a stronger hold on the circulation. Banking institutions being, as we have seen, in a position to discriminate, by paying over the counter the less desirable forms of money and retaining for reserves the more desirable, can and do keep the former in more active circulation.

The points made in the foregoing discussion apply in large measure to all kinds of money. The considerations now to be brought forward concern only credit money. Credit money, for example, a bank note, is simply a promise of the issuer to pay upon demand a stated sum of standard money or its equivalent; and such money is, by return to the issuer, retired from circulation. Accordingly, the degree to which such a money is able to maintain its hold on the circulation depends on the strength of the tendency to send it home. This in turn, depends chiefly on two conditions: (1) the strength of the motive for returning it, and (2) the ease with which the operation can be carried out. As respects the first, if a bank note or other credit money is qualified to perform all the functions

which the standard money that it calls for can perform, there will be little, if any, reason for sending it home. If, however, it is not receivable for public dues or is not a legal tender for ordinary debts, there will be some holders, anyhow, who have ample motive for sending it in to be exchanged for money more adequate for their purposes.

The working of the second condition on which depends the strength of the tendency to send credit money home—the ease with which the operation can be carried out—may be seen from an imaginary illustration. If a note holder lives in Boston while the issuing bank is located in Butte, Montana, and the noteholder has no way of securing redemption except by sending the note from Boston to Butte and bringing back the money at his own expense, there will probably be little of such sending undertaken. In such case, even though the note is not usable for the payment of taxes, the holder will content himself with retaining it for use in ordinary business. Thus, such notes tend to continue in circulation rather than go out by return to the issuer. They have tenacity in circulation just because there is difficulty in sending them home.

Although the conclusion just reached was based merely on a consideration of the causes at work, its soundness has been fully confirmed in the history of bank note issues. Thus, in the United States in the early part of the last century, when the provisions for securing the "homing" of notes were quite inadequate, those notes which could be returned only at considerable trouble and expense almost completely monopolized the circulation as against notes which could easily be returned. This was conspicuously illustrated in the city of Boston as between the notes of outlying towns and those of Boston itself,—the latter being largely driven out by the former. The condition was remedied by providing for the redemption at par in Boston of the outside notes, and establishing an arrangement whereby the institution which performed this task became in effect a clearing-house for these notes.

Under the complicated conditions of modern business, the money stock of a country naturally distributes itself, or is consciously distributed, into different parts called funds, each of which has a special function. Thus, a very considerable part of the stock is used as a medium of exchange in ordinary business. A second large quantity constitutes the reserves of the banks, especially those outside of New York City. The New York bank reserves constitute a third fund, distinct from ordinary bank reserves because, for reasons too complicated for review in this place, the general banking reserves of the country largely rest upon it. This fund also requires differentiation because it is the chief source from which must come the money employed in the settling of international balances. Another very significant fund is the 150 millions of gold reserved by law in the Federal Treasury for the redemption of treasury notes. Under the Federal Reserve system adopted a few years ago, the reserves of the so-called regional banks ought perhaps to be treated as constituting still another special fund.

Now, it is a matter of some consequence that the proper sort of money and that sort only should find its way into each particular fund; and the government takes pains so to manage the issue of different kinds of money that, as far as possible, proper distribution will be automatically effected. *The result is largely brought about by issuing just the right denominations of the money which is meant for a given fund and for the appointed uses of that fund.* Thus, if it is desired to keep a certain type of money *out of* banking reserves, especially out of the New York reserve, this is accomplished by putting out the money in small denominations. The principle which furnishes the basis for such a policy may be stated as follows:

Principle IV. *In the distribution of the monetary stock of a country, money of smaller denominations naturally gravitates to the Circulation Proper, the part which is being used*

directly as a medium of exchange; moneys of larger denominations gravitate to the Reserves, the funds kept by banks and other institutions to meet credit obligations.

This principle has been utilized in the practical management of our silver certificates, and so may be said to have been established inductively. But it naturally results from the conditions and forces present. There is comparatively little need for money of large denominations in ordinary transactions, since persons engaged in those transactions usually pay by means of checks. If, then, we restrict the issue of any kind of money to large denominations, we are certain to keep the greater part of it out of the ordinary circulation. On the other hand, in the ordinary transactions of the market there is much need for small money, whether in effecting payments outright or in making change. In consequence, we can easily infer that money of very small denominations will remain in ordinary circulation and will stay out of the bank reserves, unless it is issued in greatly excessive amounts. As a matter of fact, experience shows that it is extremely difficult to satisfy the every day need for money of small denominations. The government of the United States has been obliged over and over again to expand its issue of fractional silver and of small bills from $1 to $5.

Illustrative Problems

1. In 1849, when the United States had free coinage of both gold and silver, a change in the relative values of the two metals sent silver coin to a premium, i.e., two silver half-dollars were worth $1.02. What naturally happened to silver coin?

2. During the Civil War, the government of the United States thought best to borrow money by paying soldiers, contractors, *et al.*, with treasury notes. Yet it was desirous that these notes should not be added to the circulating medium, but should soon get into the hands of people who would lay them one side and hold them till they were due,—in other words, treat them as bonds. The Treasury finally hit on a pretty good plan to accomplish this, namely, the issuing of these notes to

bear interest, that interest to be compounded every six months but to be paid only at the end of three years. How would this plan tend to accomplish the end sought?

3. In 1862, when gold payment on treasury notes had already been suspended, the United States began the issue of legal tender notes. In consequence gold went to a premium, soon being worth $1.15 per dollar. What naturally happened to it?

4. Experts consider it very desirable that the bank note circulation should be elastic,—should expand readily when the need for money increases and contract promptly when the need diminishes. Of these two phases of elasticity, the second is in a sense the more important, in that it really provides for the first. In order to secure this power of prompt contraction, various provisions have been enacted or proposed; (a) establish a good many redemption agencies at convenient points throughout the country; (b) prohibit any bank from paying out in regular business the notes of another bank except in the city or district where the issuing bank is located; (c) prohibit the use of bank notes as reserves by banks outside the system; (d) take away the right of legal tender to government; and so on.

Explain in each case why the provision set forth would naturally contribute to the contractility of the note circulation.

5. In 1894, on account of excessive issue of silver and paper money, as also on account of the marked decline in business activity, the United States had a great excess of circulating medium. This fact (combined, doubtless, with other causes) led to a considerable contraction by export to other countries. What kind of money must have gone?

6. In 1886, Congress provided by law for the issue of silver certificates of $1, $2, and $5 denominations, and in 1900 decreed that 90 per cent of the total amount of such certificates should be in denominations from $10 down. What did they hope to accomplish by this legislation?

CHAPTER XXIV

PRINCIPLES GOVERNING THE MOVEMENTS AND DISTRIBUTION OF MONEY

The monetary stock of any country, as also of the world, is constantly in motion. Scarcely a day passes without the shifting of considerable sums of actual cash between different districts of the same country; and even the movements between nations, though by no means so frequent, are in the aggregate very extensive.

For various reasons these movements of money are of much interest and significance, both to the specialist and the general public. First, every money movement considered by itself tends to *change the distribution* of the money stock among different districts or countries; and, if for any reason the movement in one direction is long enough continued, it may cause an excessive supply at one point and a deficient supply at other points. As a matter of fact, this result is much less likely to occur than people commonly suppose, and even if it did occur it would probably be quite harmless. Occasionally, however, there may be changes of a really undesirable character; and so a knowledge of the principles governing them is needed as a basis for a corrective policy. Moreover, it will be decidedly worth our while to have a knowledge of even the harmless changes in distribution, lest, in thinking them pernicious, we should suffer needless anxiety and make ill-advised efforts to modify them. In the second place, there are some kinds of money movements which indicate *diseased conditions* in the monetary system, and a knowledge of these movements is pretty certain to prove useful when we are trying to locate the trouble. We shall, therefore, in the present chapter, set forth the natural laws regulating movements of

money between different countries or districts, and regulating the territorial distribution of the stock of money which results from these movements.

A notable fallacy in connection with the subject of money movements is almost constantly and everywhere current. It assumes that *buying any goods or services from another country naturally means losing some of our stock of money to that country.* If we give up the production of some commodity for which we show comparatively little fitness, and commence buying that commodity from our neighbors, people at once condemn the trade as certain to draw away a portion of our money. They may even fancy that, if we allow perfect freedom of trade, *all* our money will be drained away.

This error was fully, though indirectly exposed, under the Principle of Reciprocity, so a briefer statement, with a slightly different emphasis, will serve in the present connection. The dealings of one country with another, or, more exactly, of the people of one country with those of another, *do not in themselves lead to net money movements.* Even if the international dealings were commonly effected with money directly, there would be few or no net movements, assuming that we have in mind intervals of at least a few months in length. The reason is plain. No sensible person wants money for the money's sake. Our neighbors are anxious to get money by *selling their products,* not because they wish to keep that money, but because they wish to use it again to *buy our products.* This fact appears clearly enough within the limits of our own town; and in no essential respect does the trade within a town differ from the trade between it and other towns, or from the trade between the country as a whole and other countries. Money naturally comes back as surely as it goes away.

Again, under the credit regime which actually prevails in inter-local trade, *no considerable* movements of money ever take place except in very unusual circumstances. The reciprocal claims and obligations between the dealers of different

countries which grow out of their trade dealings are transformed into claims and obligations between the bankers or exchange dealers of those countries; and, between these bankers, money itself actually flows only when their reciprocal claims fail to balance. Furthermore, this failure to balance must be of appreciable duration—a few weeks at least; for usually an exchange dealer with an adverse balance will as a first resort borrow from his correspondent, sending money only when it becomes evident that the adverse balance will not be turned into a favorable one for a long time.

What we have thus shown to be true of trade relations, we can also show to be true of *investment* transactions—the lending of capital by the people of one place to the people of another place. Transfers of capital between communities, like trade payments, primarily take the form of debts between the bankers of the different communities. A person in England who lends money to an American railroad by purchasing its bonds does not send over money to that railroad; his payment, exactly like a payment for wheat or cotton, appears as a debt created against some London house and in favor of some New York house. It is thus plain that, at the outset anyhow, such a shifting of capital does not constitute a movement of money.

But, someone may object, would it not necessarily mean a movement in the end? For transactions in capital, unlike trade transactions, are almost certainly *one sided;* Europe might lend much to America while America lent little to Europe, and hence, to balance the claims against them which have grown out of buying American bonds, the European houses would apparently sooner or later be compelled to send money. But even here another alternative is possible. While America holds an abundance of claims on Europe and may use them to demand money if she likes, she probably will not do so, because it is not money that she wants. The borrowing railroads do not want money, but rails, cars and locomo-

tives. And these articles they will either buy abroad with the borrowed money, or they will buy abroad some other articles in order to release American capital and labor which can produce the rails, etc., at home; in either case, America buys from Europe more goods than usual. Thus the debt of European exchange houses to American exchange houses arising out of the fact that Europe is lending us capital, is likely to be matched with a debt of American houses to European houses arising out of the fact that Americans have bought from Europe more goods than usual. The debts are accordingly cancelled and no money will flow either way.

We thus see that neither trade nor investment transactions *necessarily* involve money movements. They may, however, involve such movements, if the circumstances happen to be of a particular character. Confining our attention for the moment to trade relations, let us examine what those circumstances are. Any fact which causes the total volume of goods or services bought by any community from other communities to remain for some time in excess of its sales to those other communities, will tend to bring about a net movement of money from the community whose purchases are in excess; on the other hand, any fact making the sales of a community exceed its purchases, will tend to bring about a net movement of money into that community. The argument is too simple to need elaboration. The exchange dealers of a community which buys more than it sells will for a shorter or longer period be in debt to the exchange dealers of other communities. But the creditor dealers do not like to wait indefinitely for their pay, and so, if there is no promise of an early turning of the tide, they will probably order the money itself delivered. This principle is illustrated almost every year in the trade between America and Europe. The exports of America, being largely agricultural, are naturally "bunched" at certain seasons; while its imports from Europe, being generally manufactured products, are distributed more uniformly

through the year. Consequently, temporary balances against Europe are almost sure to appear in the fall season and to lead to movements of money toward America.

There are likewise conditions under which investment transactions may cause money movements. An exchange balance created against a lending country by the movement of capital is, as we have seen, usually offset through the natural readjustments of trade—the expansion of imports into the borrowing country. But if the movement of capital from country to country is very large and rapid, the growth of trade may not be rapid enough, for an extended period, to restore the balance. In this event, the creditor country, unwilling to lose the use of its capital, if only for a few weeks, will probably order the gold shipped.

Bringing the essential points of the foregoing discussion into a single statement, we have the following principle:

Principle I. *The dealings of one country (community) with other countries in respect to goods and capital do not in themselves naturally lead to net movements of money either to or from said country; but, if circumstances are such as to maintain a balance of claims for or against said country for a period of several weeks, a net movement of money to or from that country is probable.*

Based upon the above principle are five corollaries, each of which should, with only the briefest statement, explain itself.

Corollary 1. *Money tends to flow to any country (community) where the rate of discount is exceptionally high, and vice versa.*

If the rate of discount in any country or community, let us say New York, rises to a point two or three per cent higher than in London or Paris, bankers having connections in New York will hasten to avail themselves of this opportunity to make exceptional profit by transferring funds to New York.

Naturally, they will so far as possible use credit for this purpose. But, if the high rate persists and they continue to send funds, they will soon exhaust the available supply of credit and, thereafter, will send money.

Corollary 2. *Money tends to flow from a country where the stock is abnormally large as indicated by the state of the central reserves.*

This corollary is closely related to the last. An excessive money stock causes a fall in the rate of discount, which brings into operation Corollary 1. In extreme cases, an excess of money raises the prices of commodities; this naturally brings about an expansion of the import trade; and the latter, by creating a balance against the country, finally causes an outflow of money.

Corollary 3. *There tends to be a continuous net flow of money from a country which is a producer of standard money metal.*

Corollary 3 remarks the tendency of money to flow from a country producing standard money metal. The reason for an outflow of this kind is not far to seek. The natural and easy way to market standard money metal is to take it, directly or indirectly, to the mint, have it turned into money, and sell it as money—that is, spend it for goods. By this process the money stock of a gold-producing country is constantly being augmented, and is constantly becoming excessive; and with an excess of money there come into operation the influences already cited under Corollary 2. This proposition needs emphasis chiefly because it shows the folly of undue anxiety respecting an excess of gold exports from a nation producing a large amount of gold. We should expect, as a matter of course, that the custom house reports of the United States or Australia would show them exporting more gold than they

import. Gold is one of their important products which they naturally use to buy things they cannot produce so easily, just as they use wheat or wool.

Corollary 4. *Money tends to flow from any country which has experienced a marked decline in industrial activity.*

When business slackens there is less money work to be done; this makes the existing money stock excessive, and so brings into operation Corollary 2.

Corollary 5. *If a full weight metallic money comes to command a premium, it tends to be exported from the country.*

Full weight metallic money which comes to command a premium, is certain to be withdrawn from circulation almost completely; since it will seldom be accepted in exchange at as high a premium as that given on the bullion market. But, being withdrawn from circulation, it becomes mere bullion, a metal, not money. Again, changing such a quantity of money into bullion inevitably makes the stock of bullion altogether excessive for the uses to which it can now be put. In consequence, the value of the bullion in the home market is lowered as compared with its value in other markets; to put it a little differently, the premium which the bullion bears at home is not so great as the difference between its nominal value as money and its value in other countries. It will therefore be exported to those countries where its value is greater.

The discussion of Principle I and its corollaries must by this time have made it clear that purchase abroad does not necessarily mean a loss of money from the purchasing country. But, further, if we look more deeply into this subject, we shall find that money drains, when they do occur, can in all but a few special circumstances safely be left to correction by natural causes.

First, the movement may be stopped by the automatic reversal of that condition which is necessary to bring it about. That condition is a high rate of exchange, a rate on London, for example, of $4.89; for obviously, the exchange dealer could not afford to send gold unless he got out of the transaction the value of a sovereign $4.866+ plus the cost of sending it, about three and one-half cents. But such a high rate of exchange will naturally set up an unusually strong tendency for the export of goods. If I am selling wheat to London, when claims against London—which will be used to pay for my wheat—are selling at several cents above par, my trade will be unusually profitable. I will therefore be eager to sell as much as possible; but so will other American exporters be eager to sell, and, competing against each other, we will shade our prices; with prices lowered, our eagerness to sell will be met with eagerness of Londoners to buy,—so that our export of goods will increase at a bound. But what, now, will be the consequence of the increase in exports due to the high price of exchange? Manifestly, those exports will put Londoners in debt to us, will increase the supply of claims, or exchange, on London. But when exchange becomes abundant, its price will inevitably be lowered. And, finally, since, as we saw at the outset, a high rate is necessary if gold is to be exported, the lowered rate will tend to check the export. To put the whole argument in a sentence: gold cannot go until exchange reaches a very high rate; but a high rate of exchange stimulates exports; the increase in exports presses down the rate of exchange; and the lowered rate of exchange stops the outflow of gold.

Not only is an outflow of money stopped by the automatic reversal of the condition which makes it possible, but, further, a persistent net movement of money tends to be stopped or even reversed by the action of conditions which its own continuance establishes. Three processes may be distinguished.

First, a money drain from any country makes the surplus banking reserves from which money for export is taken, in the chief commercial centers (London, New York, etc.) relatively small. Depletion of the surplus reserve will raise the rate of discount—interest collected in advance—on short time loans; since the rate on this kind of loan is almost entirely dependent on the size of the surplus reserve. A high rate of discount thus established will make the country a desirable market for lenders, and so will tend to draw in the floating capital of other countries.

Ordinarily this process is adequate to stop an excessive drain of money; but, if it does not prove so, a new and slightly different series of reactions follow and usually effect the desired result. When the central banking reserve becomes scanty, the inclination of people to buy or hold international securities,—the trade in which is usually based on borrowed capital,—rapidly diminishes. With a fall in demand, the price of securities also inevitably falls. But a lower price for securities will encourage foreigners to buy them, thus giving New York an abundant supply of exchange on Europe. Finally, since, as we have already seen, abundant exchange means a *low rate* of exchange, the condition necessary to further outflow—a *high* rate of exchange—is thus removed.

There is yet a third chain of causation which comes into operation probably a little later than the others. The same high rate of discount which causes a fall in securities, if long enough continued, leads to a fall in the prices of the great export staples, such as cotton and wheat, which are speculated in like securities. This fall in price leads to increased buying by foreigners, which makes foreign exchange abundant, thus lowering the rate of exchange, and checking the outflow of money. Finally, if the outflow went on long enough to produce a scarcity of money in the country as a whole, there would result a general fall in prices, which would stimulate

foreign buying all along the line until the direction of the money movement was completely reversed.

The foregoing arguments would seem to establish beyond question the following principle:

Principle II. *Every net movement of money tends to be stopped, or even reversed, by the automatic reversal of that condition which is necessary to bring it about, or by the action of conditions which its own continuance sets up.*

From the above principle it is only one step to the following corollary:

Corollary. *There is never any danger that an outflow of money from a particular country will go on till that country is denuded of its monetary stock.*

Every net movement of money, even a moderate one, tends automatically to bring about its own stoppage. But, obviously, if this is true of *every* net movement, it would prove to be true of any movement so extensive that it threatened the complete exhaustion of the money stock.

Another important principle regarding the distribution of the money stock, and one which is little more than a corollary from the last may be stated as follows:

Principle III. *Generally speaking, the monetary stock of a country, or group of countries having the same standard, tends to distribute itself according to relative need.*

If the need of any particular country, as compared with other countries, is less completely satisfied, *this fact alone will tend to start a process of redistribution,* which continues till the several needs are satisfied in equal measure. The explanation of this process has already been anticipated. If the stock of money in one country, as compared with another, is small relatively to the money work to be done, this fact will show

itself in deficient bank reserves, and such a deficiency, causing the rate of discount to rise, will bring an inflow of money for investment. A high rate of discount will, moreover, cause the prices of securities and of the great staples to fall, again resulting in an inflow of money. The process by which an excess in any country is corrected by an outflow to other countries is simply the reverse of those described. There first results from the excess an expansion of the bank reserves; large reserves bring down the rate of discount, making investments unprofitable; and this will cause capital—and, in time, money—to be exported. The low rate of discount will, moreover, occasion a rise in the prices of securities and the great staples; foreigners will then begin to sell freely on our markets, thus expanding our foreign debt; and a large foreign debt, raising the price of exchange, will very quickly result in the export of money.

The above argument treats of movements occurring between highly developed commercial nations having the ordinary economic relations. As between small communities where standard money metal is produced,—for example, South Africa and the Klondike, on the one hand, and the rest of the world, on the other, the working of things is, if anything, more simple. The extraordinary abundance of money (for in such places gold, even in its raw form, at once becomes money) and the great scarcity of all other goods make prices excessively high; as a result, goods flow in at an extraordinary rate; the community has constantly a large balance of indebtedness against it; and money must constantly be sent out.

Up to this point our discussion has placed a special emphasis upon the self-regulative character of monetary distribution. If taken in too absolute a sense, this might lead to a misunderstanding. The last of our principles governing the movements and distribution of money must, therefore, be one which in some degree qualifies those heretofore laid down.

Principle IV. *While, in general, the proper distribution of the world's monetary stock among the different nations can safely be left to the working of automatic forces, circumstances may arise under which it is desirable consciously to control particular movements of money, in order to maintain the stability of the system of credit.*

In a typical monetary system of our day, a large part of the total monetary stock consists of representative or credit money and bank credit. Under such an order, the foundation of *standard money* is vastly more important than any other constituent of the circulating medium; it is not mere money; it is emphatically the *basis of the whole system.* This is particularly true of that portion of the stock of standard money which we call the *ultimate reserve,* the reserve kept by a great central bank or, as in the United States, by the government, to redeem credit money. To maintain this reserve in adequate volume is of the greatest moment, not because we need it as a medium of exchange, but because, if it proves inadequate, the whole system will fall in ruins.

Accordingly, it is natural that every extensive movement of standard money should be jealously watched with reference to its possible bearing on the ultimate reserve of the system. When that reserve is being drawn down, it is not enough to say that, in the long run, an excessive drain will correct itself. We cannot afford to wait for the long run,—serious consequences may overtake us in the meanwhile. The disappearance of the ultimate reserve would mean the overthrow of the standard; and even the beginning of a depletion which threatened to be at all serious would excite such anxiety in the business world as gravely to injure industry and perhaps precipitate a panic. A nation may, for example, find itself experiencing the specie drain incident to a great war, a drain for which automatic regulation will not furnish a sufficiently strong or sufficiently rapid check. Or there may be a drain

arising from the action of unwise statutes or other artificial conditions, which at the very best cannot be changed for a long time. In such circumstances, it might easily be the duty of the government, or the great central bank, to take active and vigorous measures to check an outflow of standard money.*

Illustrative Problems

1. "When I came to Marblehead they had their houses built by country workmen, and their clothes made out of town, and supplied themselves with beef and pork from Boston, *which drained the town of its money.*"—Barnard's Autobiography. Criticise the part in italics.

2. During the years 1853 to 1864, inclusive, when France had a system of bimetallism at a coinage ratio of 15.5 to 1, while the market ratio was about 15.3 to 1, the French circulation absorbed about $680,000,000 of gold, and ejected about $345,000,000 of silver. Explain these facts, using one of the corollaries of Principle I.

3. Between America and Europe there is usually a net movement of money toward Europe during the second quarter of the year, toward America near the end of the third, and early in the fourth, quarter." Explain why you would expect this to be true.

4. "A country has never been despoiled of its money by the working of its international trade."—Gide's Political Economy, p. 120. Why does he feel so sure about this?

5. A New York wheat broker sells 50,000 bushels of wheat to a Liverpool miller, and sells against it a sight bill of exchange for the proceeds, £8735 16s. The wheat cost him 84 cents per bushel.

(a) With exchange on London at $4.88, what would his profits be?

(b) What would they be with exchange at $4.84?

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* The most important device employed for this purpose consists in raising the rate of discount, and thus bringing into operation Corollary I of Principle I.

(c) What does this have to do with money movements? Explain carefully.

6. "Between New York city, as the banking center of the United States, and the country at large, there is usually a great money movement outward from New York during the summer and early fall, and an inward movement toward New York during the late fall or early winter." Explain why you would expect this to be true.

CHAPTER XXV

PRINCIPLES GOVERNING THE VALUE OF MONEY

Thus far in our discussion of money we have treated it as a thing apart from the general field of economic goods, a thing peculiar, and governed by laws of its own. Again, in our chapters on Price (Chapters XIV to XX), we for the most part spoke of economic goods as if money, the thing in which the prices of those goods is expressed, were not to be considered as one of them, essentially the same in kind and governed by the same laws. But these implications are misleading. Money is in a sense an economic good, just as wheat or cotton are economic goods, and the time has now come when we must so treat of it. We must show that money, the thing in which the values or prices of most other goods are expressed, is itself subject to the laws of value and price.

The chief defect in our earlier reasoning lay in the assumption that money was constant in value. This assumption was encouraged by our emphasis on the idea that the money unit is tied to a certain definite quantity of substance, say 25.8 grains of gold, just as a gallon measure is tied to 8.33 pounds of water. But, as a closer examination will disclose, any such view is decidedly inaccurate.

The cases of the money standard and the liquid-measure standard are not properly analogous. In using 8.33 pounds of water as a standard of liquid measure, we need have no anxiety that the bulk of the water itself will change, and so cause that of our unit to change; for *we can make those conditions which would modify the bulk of water—temperature and atmospheric pressure—absolutely the same in all times and places.*

But we cannot parallel this operation with gold and its value. We can not say that we will have as our money standard the value of 25.8 grains of gold *under just the same conditions as prevailed when it was finally adopted in* 1873; for we can never reproduce those conditions. All we can do, and all we try to do, is to keep the value of one dollar equal, at any particular time, to the value of 25.8 grains of gold at that same time. In doing this, we anchor the value of the dollar to a value which itself changes, and so, of course, the value of the dollar will change. Doubtless our policy in this matter is, on the whole, wise; for the value of gold changes very slowly, perhaps more slowly than that of any other single commodity, and, anyhow, we ought to have the same standard as the rest of the world, which is gold. But, whether wise or not, this policy anchors our money to something which changes in value, and so the value of our money changes, instead of remaining constant, as has all along been assumed.

But, although changes in gold and money value do occur, it is not so easy to establish the fact of change or to measure its extent as the student might imagine. Gold, being the standard of all great commercial nations, there is practically no market where its value is expressed in terms of anything but the money unit. There is, therefore, practically no place where the *apparent* value of gold and money alters at all. In the United States, 25.8 grains of gold is always worth one dollar and, conversely, one dollar is always worth 25.8 grains of gold. Hence, our only method of ascertaining changes in the value of gold and money is to study *the movements of the prices of other things.* If gold, and so money, should all at once greatly rise in value, their own price—in terms of each other—would remain constant, but that of goods and services in general would fall. Conversely, a sudden fall in the value of gold and money would show in a rise of the prices of all other things. It would seem, therefore, that we need only ascertain the changes in the general level of prices to

know the changes in the value of money; and, in large measure, this is what we try to do.

But we scarcely begin an application of this formula when we run upon difficulties of a most serious nature. Changes in the value of money would surely express themselves in opposite changes in the level of prices. But the level of prices may also be affected by a sudden collapse of business demand or a great fall in cost of production. In other words, a change in the general price level may really be, not a change in the value of money, but a *change in the value of goods.* Or, to use a better expression, some changes in the general level of prices have their origin in causes affecting goods rather than money; and, if called changes in the value of money at all, these may be distinguished as *relative changes,* while changes in the price level due to causes acting on money itself would be called *absolute changes.*

A familiar instance of a relative change is the following. When, after a period of industrial stagnation, business begins to pick up, and people regain their faith in the future, there naturally takes place an expansion of demand for goods of all sorts, and in consequence a measurable rise in prices, starting among a few commodities but gradually extending until it covers, if not the whole field, at least a large portion of it. As the boom advances, this movement becomes more and more pronounced. Every one, believing prices will go higher, is eager to buy, that he may have something to sell at the higher prices; and, of course, his eagerness to buy means more demand and so contributes to the very price advance which he expects. This self-propagating movement continues until the expansion has passed all reasonable bounds, when suddenly some accident precipitates a general collapse of the boom,—pricks the speculative bubble. At once all are eager to sell, no one wanting to buy; and this sudden expansion of supply and contraction of demand causes a falling-off of prices, more rapid probably than the rise has been. These changes all take place, not because anything has happened to

money, but because something has happened to people or to goods.

Take another illustration. If throughout a period of some length, say between 1850 and 1890, technical methods generally undergo a rapid improvement so that the costs of producing large numbers of commodities are much reduced, there naturally follows a decline in the prices of these commodities so great as to lower markedly the average, or general, price level. But such a lowering of the general price level could not properly be conceived as a real or absolute advance in money. In a very natural sense of the terms it is not a change in the value of money at all, but rather a change in the value of goods.

So much for relative changes. In a study of money, however, it is of course not the relative changes, but the absolute changes which are really germane. Our reference to changes in the general price level have been made merely to guard against the danger of confusing them with genuine changes in the value of money. We turn now, therefore, to the real task of our present chapter, the analysis of these genuine, absolute changes.

The principle governing the value of money which is looked on by the majority of economists as most truly fundamental is known as the quantity theory or principle.

Principle I. *The value of money in any country tends to vary inversely as the quantity of money in that country.*

The argument for the quantity theory runs somewhat as follows: If the quantity of money increases, people in general will have more to sepend, will, therefore, demand more goods. But, if people demand more goods—no corresponding increase in such goods being provided for in the hypothesis— prices in general are certain to rise. Finally, such a rise in general prices is the same thing as a fall in the value of money. On the other hand, if the quantity of money diminishes, people will have less money to spend, will, therefore, demand fewer

goods, and so prices will fall; that is, the value of money will rise.

This argument, though an *a priori* one, has at times been strikingly confirmed in experience. Thus, in a community which contains only a few thousand inhabitants there may occur a great gold discovery, producing, in a few months, bullion to the value of hundreds of thousands of dollars. As this bullion can be almost instantly turned into money or its equivalent bank credit, the money demand for all sorts of goods will at once greatly expand. In the output of goods, on the contrary, there will be no corresponding increase. Consequently, the prices of goods in general show a rapid rise. And, since this rise is caused by the increase of money or its cheapening (in cost) or both, it constitutes a real or absolute fall in the value of money. In gold producing districts, such as California, Australia, and the Klondike, the new gold was generally used as money at once, in its bullion form, without waiting for coinage. The eager spending of this new metal to buy the necessaries and luxuries which the hitherto poor miners craved, naturally led to a swift advance of almost all prices, that is, a swift fall in gold.

The application of the principle in a small community is thus easily shown; but does it apply as well to an entire country, or to a whole group of countries? In such a country, or group of countries, *will the value of money tend to vary inversely as the total quantity of money?*

An addition of 200 million dollars' worth of gold to the world's stock must surely tend to modify the gold, or money, demand for all goods other than gold, and so to modify the value of gold as measured in those goods. The new gold, or much of it, will be coined and pass into the monetary stock of the world; this will mean a corresponding enlargement of the ultimate reserves to which gold money is mainly relegated; and this enlargement in turn will lead to an expansion of bank credit, and so of general purchasing power. As a result, buyers will find it easier to get possession of purchasing

power. If they are already disposed, on other grounds, to go into the market as buyers of wheat, cotton, machinery, etc., the increased control of buying power will increase the demand for those goods. Finally, the increased demand will tend to raise the prices of those goods or, in other words, to lower the value of gold.

In a large country or in a group of countries, however, this process cannot be looked for with anything like the same degree of confidence as in a limited district. That the value of money *tends* to vary inversely as money quantity, assuming that sufficient emphasis is laid upon "tends," would seem almost indisputable. The norm toward which the actual value of money gravitates, about which it varies under the influence of more temporary causes, is in large measure determined under the principle noted. Nevertheless, this doctrine requires much qualification. Historical and statistical studies have seriously undermined it, and not a few economists have been tempted to reject it altogether. In the opinion of the writer, the doctrine contains a basis of truth which is of prime importance. But the limitations to which it is subject in actual experience and which seem at times to reduce its practical significance almost to nothing, must be clearly understood.

First, so far as gold, the standard money is concerned, the quantity in existence changes so little in a year, or even in a long series of years, that, however true the theory might be, we should have great difficulty in establishing a satisfactory proof of it. In the case of many commodities, as for example wheat, the output of a year constitutes almost the entire stock for that year, and a doubling of the output means almost a doubling of stock. But not so with gold. Its physical imperishability, its very high specific value, and its technical treatment as money make it, economically considered, immortal. It is almost never consumed in the sense of being irrevocably withdrawn from the market. The untold accumulations of the centuries are in large measure available to meet the needs of today. In consequence, an increase or decrease

in the output does not cause anything like a corresponding increase or decrease in the stock. The stupendous additions necessary to make a change in stock sufficient to show in a perceptibly changed value virtually never occur.

Another limitation, or set of limitations upon the quantity theory grows out of the fact that in any modern monetary system, purchasing power, stated in terms of money, is not rigidly fixed by the quantity of money, but is almost indefinitely elastic. The whole point of the theory, as we have seen, lies in the assumption that if people have more money they will demand more goods, and that if they have less money they will demand less goods. It is easy, however, to show that this argument rests on a very shifting foundation.

First, a small quantity of money, frequently turned over, will demand as much goods as a large quantity of money circulating slowly. Money demands goods every time it is spent or offered in exchange; and when it is not being offered in exchange it is not demanding goods. Hence, as the saying is, the nimble sixpence may do the work of the slow shilling. In a word, rapidity of circulation may neutralize any tendency to a rise in value caused by scarcity of money, and slowness of circulation may neutralize any tendency to a fall in value caused by an abundance of money.

Second, if the quantity of money did cause a change in money values, and that change were thought undesirable, there would be no reason, under modern conditions, why the defect in quantity should not be speedily corrected. As regards gold itself, a deficiency in one country is easily made good by imports from elsewhere, while an excess is easily relieved by exports. But even if the quantity of gold were not alterable,—and, as we have seen, it is not perceptibly alterable in all countries at once,—this would be of no great consequence. Only a small proportion of the actual circulating medium, the buying power in money form, consists of gold. A much greater part consists of bank notes, secured by small re-

serves of gold, and the issues of these may be expanded or contracted at will.

But there is an even more important consideration. The general course of wholesale prices is largely determined in the great exchanges where wheat, cotton, iron, petroleum, and so on are dealt in. Now, the exchange medium employed at these markets is not money in the narrow sense, but rather credit. Cotton, wheat, and iron are paid for with checks, and these checks practically never lead to a call for cash—the transactions are carried on almost entirely with deposit currency. But this sort of circulating medium expands or contracts virtually as it is needed, expands or contracts, indeed, with the expansion or contraction of the very business which employs it. Just because a dealer has bought 50,000 bushels of wheat, he can induce his banker to manufacture on his behalf say $30,000 in credit money, secured by that wheat, and ready to be used in buying more wheat. The new wheat, in turn, can be made the basis of additional bank credit, which again can be used in buying still more wheat.

There must always exist, to be sure, a basis of real money; every new bank loan must be secured by a certain reserve of standard coin or metal; but the possible expansion of the loan is several times as great as the necessary addition to the reserve. Hence if business prospects look favorable both to the would-be borrower and the bank, the purchasing medium can be and will be expanded almost indefinitely, with only the slightest dependence on the stock of money existing at the time. On the other hand, if prospects are not favorable, the buying medium, deposit currency, will not expand, no matter how large the reserves of real money. So, here again it appears that the quantity of money has little to do with determining the demand for goods. Demand expands or contracts according to general business conditions, creating or destroying its own medium of exchange as the need arises or disappears. Hence the quantity of money appears to have

little effect in determining changes in the absolute value of money.

Nevertheless, with all these qualifications, the quantity theory, as a statement of a general tendency, remains unshakeable. Given more money to spend and no more goods to spend it for, the price of goods will rise, which means that the value of money will fall; and given less money to spend but the same amount of goods to spend it for, the price of goods will fall, or the value of money rise. It may require a really stupendous addition to or deduction from the existing stock before any change in value traceable to it can be discovered; it may require a comparison of two very extended periods, the one having a per capita circulation twice as great as the other, before any difference not due to merely relative changes can be detected. Yet without doubt the tendency does exist—the quantity of money does operate to affect its value.

If the value of money varies inversely as the quantity, we should need little argument to establish certain facts concerning the effect upon value of various forces that influence the quantity. Since the output of money metal increases the stock, it must tend to diminish the value of money. Since a high cost of production tends to diminish output, and a low cost of production to increase output, then the one must tend to raise and the other to lower value—although, due to the highly speculative character of mining, this cause does not operate with anything like the promptness or certainty characteristic of many other industries. Finally, since the increase or decrease of money metal used in the arts must affect opposite changes in the amount of such metal available for use as money, they necessarily tend to increase or decrease the value of money.

The facts just mentioned may all be briefly stated in a corollary of Principle I.

Corollary. *The value of money tends to vary inversely as the quantity of standard money available, and hence to*

vary inversely as the output of metal, directly as the cost, and directly as the quantity used in the arts.

While the quantity principle is the basal doctrine for money values, special circumstances may arise in which one or two other principles have greater influence. Thus, the value of the substance used for the monetary standard may at times be determined quite independently of the quantity of money, and then the value of money be fixed in accordance with the value of this ultimate standard substance. Whenever the value of the ultimate standard changes, as measured in at least one important commodity, then the value of the money dependent on that standard will also change. Business men of experience, alert and shrewd, will certainly refuse to sell goods at the old prices for money which, as measured in an altered ultimate standard, has fallen twenty or thirty per cent. And if they proceed to raise prices, this will constitute a change in the value of money by adjustment to a changed ultimate standard.

Suppose the standard of a country is a metal which has the status of a mere commodity in some great world market where the country in question maintains intimate trade relations. Thus before 1893, India had a silver standard. At that time, as now, silver was in London and other European centers a mere commodity, bought and sold like cotton or wheat. Naturally, it showed many fluctuations in price; and every marked fluctuation was followed by an opposite change in Indian prices, particularly of imported goods. When silver fell, Indian prices rose; when silver rose, Indian prices fell,—in a word, the value of Indian money was readjusted to variations in the world price of silver. This result was, of course, the natural one to expect. If silver fell, the value of Indian silver rupees, as measured in English pence, would fall; it would take more of them to buy the goods imported from Europe; and so the dealer would have to recoup himself by charging more for the goods. But, if dealers in imported

goods charged more, dealers in domestic goods would in the long run have to do the same, or else suffer a loss. Finally, if dealers in general charged more for their goods, laborers would presently have to begin charging more for their services. A rise in prices begun in the import trade would thus eventually be extended throughout all business relations. And this is merely to say that the value of the rupee was being adjusted to the value of silver.

A second illustration. Suppose the standard money consists of irredeemable notes. Changes in the value of this money, as measured in the metal which was formerly standard, can be followed in the market price of that metal. Thus, during the American Civil war, gold went out of circulation and was speculated in on the open market just as cotton, wheat, and copper are now. Every day, every hour, its price, measured in greenbacks, the standard money which had displaced it, rose or fell. But this, of course, is the same as saying that the value of greenbacks, measured in gold, moved in the opposite direction,—fell or rose. Naturally, every seller of goods would note these changes in the greenback, since it was the measuring unit of the values of the goods he was selling. Naturally, too, he would sooner or later make some effort to guard himself against loss from the fall in greenback values. Doubtless he would not try to readjust his prices to every change, but we can be quite sure that great declines, especially if long continued, would lead to a remarking of goods, a readjustment of prices to correspond to the decline in standard money.

As a formal statement of the points here illustrated, we have the following:

Principle II. *Whenever the conditions are such that it is possible for the general public to have fairly conclusive evidence that a change in the value of the ultimate standard, as measured in at least one important commodity, has taken*

place, there will almost certainly follow, more or less rapidly, a direct readjustment of the value of money (and so of general prices) to the changed ultimate standard.

A third principle concerns the value of irredeemable paper money as affected by political or commercial uncertainty. Irredeemable paper money is merely credit money which has hitherto been redeemed freely on demand in the standard money, but on which, for the time being, redemption has been suspended. The type we have in mind is issued by the public treasury or a central bank closely allied to the Treasury, for example, The Bank of England. When payment on such money has been suspended, it inevitably becomes the standard money as shown on page 356. Now, in normal times, when no public crises intervene, the value of money of this sort may remain at about the same point for months or even years. That point will be below the value of the standard displaced, but not necessarily much below, depending on the quantity out, the skill with which it is managed, etc. But, if any period is marked by uncertainty in public and commercial affairs, for example, if the nation is engaged in a war characterized by greatly fluctuating fortunes, anxiety will naturally spread abroad lest the Government will in greater or less degree repudiate its obligations. This failure of the public confidence will of course react on the value of the notes as measured in the old standard, causing that value to show extraordinary fluctuations even within the limits of a single day.* But this will not be the end of the matter. As brought out in discussing Principle II, dealers will more or less fully adjust their prices to the larger changes in the value of the irredeemable paper as measured in the old standard. The final result then, will be that the value of such money, as measured in goods in general, will vary in a rough way with

* As seen in opposite changes in the value of the old standard metal, quoted in terms of the irredeemable note.

the degree of the public confidence in the certainty and proximity of its redemption. The following statement will formulate the conclusions of our argument.

Principle III. *During a period marked by much uncertainty, either political or commercial, the value of irredeemable paper money is chiefly determined by public confidence in its ultimate redemption, varying directly as said public confidence.*

MISCELLANEOUS PROBLEMS UNDER MONEY

1. "I can't understand what people mean when they say that money has risen in value since 1873. Money is by common consent the measure of the values of all other things; and so *its own value must be fixed,—cannot rise or fall.*"—From a gold advocate in 1896. Explain his mistake.

2. Why would changes in the total quantity of money in the United States between 1862 and 1879 naturally have had more influence on its value than equal changes would have had between 1850 and 1860?

3. Extract from a speech in the campaign of 1896: "If any man in this community would offer to buy all the eggs at 25 cents a dozen and was able to make good the offer, nobody would sell eggs for less, no matter what the cost of production, whether one cent or five cents a dozen. So with silver. Free coinage *would establish the market price of silver at* $1.29, and nobody would sell for a cent less."

There is doubtless a sense in which the italicized claim is true but this is not the sense which was intended. The speaker meant that silver would rise to $1.29, as measured in the present dollar; so that there would be no repudiation of debts in adopting the free coinage of silver.

(a) Show that such a claim is not established by this argument.

(b) In what sense is the statement true?

4. "We have altogether too little money in the country ($2,600,000) not enough to pay the railway debt ($6,000,000), or even the debts of banks to depositors, let alone the business debts." Explain fallacy.

5. A few years ago Mexico had a silver standard. If at that time silver had risen in value, would the Mexican dollar have risen in value? Would it have risen in price? Would the price of silver bullion have risen?

6. In 1856 the monetary system of France was bimetallism at the ratio of 15.5 to 1. The market ratio at that date was about 15.3 to 1. What must have been the monetary standard? Prove.

7. In the panic of 1893, when in America money was so scarce that business men and bankers had to resort to all sorts of substitutes, such as due bills, New York drafts, deposit certificates, etc., an eminent American economist said in substance: "What do you think now? Was I not right in contending that the stock of money is altogether insufficient?" Did the facts establish his contention?

8. Argument against Bryan in the campaign of 1896: "I can see how free coinage is going to increase the profits of the mine owners *by doubling the value of silver;* but I do not see how it is going to help the rest of us." Explain the fallacy in the words italicized.

9. During the sixth decade of the XIX Century when France had bimetallism at a ratio of 15.5 to 1, though the market ratio was about 15.3 to 1, dealers to their surprise every now and then received silver five-franc pieces in payment for goods. Why should this have surprised them?

10. Unless the government redeems all worn coins at their face value, a coinage in active use always shows a strong tendency to deterioration." Explain why this is bound to be true.

11. "I object to our buying outside anything which we can produce at home; for this means just so much money lost from our coin circulation." Show that this is unsound.

12. About 1850, when the United States had bimetallism at a ratio of 16 to 1, there took place a considerable fall in the silver price of gold, so that the silver in an American silver dollar was worth 2 to 3 cents more than the gold in a gold dollar. In consequence, silver coins generally went out of circulation, only the much worn ones remaining. Explain (a) why most went out and (b) why some stayed.

13. What is meant by saying that our mint ratio between gold and silver was 1 to 15.98?

14. "New York, Dec. 11, 1903. The banks gained from the interior this week $2,042,906." Newspaper. Was this normal?

15. "London, Oct. 3. One hundred and fifty thousand pounds sterling gold will be shipped tomorrow to New York." Was this normal?

CHAPTER XXVI

THE PRESENT SYSTEM OF DISTRIBUTION

It is a fact of every day observation that the economic incomes enjoyed by different persons or families are very unequal in amount. Unskilled laboring men have to content themselves with perhaps two dollars per day; skilled labor can demand five dollars or more, and professional men from ten dollars upward; while in the world of business and finance we may, without searching very far, find men who receive for their services more money in a minute than the laboring man does in a year. Even more conspicuous is the fact that the totals of accumulated wealth owned by different persons or families are very unequal. We have at the one extreme multitudes of persons who own only a small property, or perhaps no property at all, and at the other extreme not a few individuals whose wealth mounts up to the millions.

This inequality of incomes and possessions would, like any other notable phenomenon, demand scientific explanation even if no great human interests were involved. But human interests are involved, and very deeply — inequality in matters of wealth is one of the most trying facts in the lives of men, and hence the study and discussion of that inequality inevitably become of very exceptional importance. Accordingly, the economist has in every generation, and in ours most of all, spent much time trying to answer questions like these: What are the incomes received by different classes of persons? Under what general and specific principles are these incomes at present determined? Is the result entirely reasonable or just? If not, what is to be said for and against the various projects brought forward to improve matters? Such questions as these suggest pretty fully the scope of that division of economics

commonly known as *Distribution;* and we shall, for the present, at least, attempt no more formal definition. In the present chapter, our task will be to study the existing system of distribution in its more *general aspects.*

Section A. The Principal Kinds of Income

The principal kinds of income are wages, rent, interest, and profits. These terms have already been used in various connections, and we should have no difficulty in understanding their meaning. Wages are the income which men receive in return for personal services—labor. Interest is the capitalist's remuneration for waiting, and takes its purest form in loans where *risks* are practically eliminated. Profits, on the other hand, are the remuneration paid especially for *taking the risks* or, better, for *taking the responsibilities of ownership.* Rent is the hire paid for the use of unproducible or indestructible elements in land.

These incomes, it should be noted, are strictly economic, in contrast to others which might properly be called non-economic. Economic incomes are those, like wages from the sale of labor, which arise directly out of economic activities. Those of the other type arise *outside* of economic activities, from gift, theft, or accident. Some incomes, to be sure, can with more or less reason be assigned to either class. Thus, many of the great incomes obtained in America from the exploitation of natural resources, such as lumber, copper, and oil, which we usually classify under one of the regular economic shares—profits—may also be conceived as in a sense non-economic, in that they often have their origin in the foolish or corrupt munificence of government. Naturally, the study of incomes undertaken here will be largely concerned with those which can properly be called economic.

Again, we should note as a general point that economic incomes are of two distinct classes—*personal* incomes and *property* incomes. Personal incomes, which men receive in

exchange for personal services, may in practically all cases be brought under the category of wages, though in ordinary speech remuneration for the higher forms of personal service is usually called salary. Property incomes, those which men receive in exchange for services given by the property they own, fall into three classes, *rent, interest,* and *profits.*

Illustrative Problems

1. Mr. Crane puts $3,000 into a grocery business and works himself in the store from morning till night. His net return from the business is $1,500.

Make an imaginary distribution of this income into the several economic shares which are probably involved.

2. My friend has eight houses and lots in Ann Arbor which he rents, getting for each, let us say, $360 a year. Try to break up this sum into the different elements which probably enter into it.

3. At a certain inland resort rowboats are let at $1.50 per day. Enumerate the different elements entering into this sum.

Section B. General Character of the Process Determining the Regular Economic Shares

The four economic shares, then, are wages, rent, interest, and profits—these comprise the four economic sources of the livings that men get. The next question is, How are the *amounts* of various incomes determined? To put the matter concretely, suppose we have an automobile factory. How does it come about that I, as a laborer therein receive thirty dollars a week for my services; that you, as owner of the land on which the factory is built, receive $5,000 a year for the rent of it; that a third party who has loaned the money with which the factory was erected, the machinery bought, and with which, perhaps, you and I are paid, receives five per cent. on his capital; that, finally, the man at the head of the whole concern receives half a million a year for undertaking to pro-

duce automobiles, and bearing all responsibility for their production? The factory, in short, or the total product of the factory, constitutes the source from which the laborer, the landlord, the capitalist, and the entrepreneur all derive their incomes. Our question is, how does it happen, precisely, that the four shares are apportioned as they are?

In examining the principle for the apportionment of economic shares, it is essential above all that we carry it into the laboratory and treat it with scientific care. This principle, naturally, is the chief thing which lies at the root of that inequality of incomes and possessions which we referred to a moment ago, and we are therefore tempted to view it rather as a moral than a scientific phenomenon, and flatly to declare it unjust. But, if we think with passion, we shall be apt to think loosely. If we condemn a thing before we understand it, we shall be certain not to understand it; and, until we do understand it, we can never be sure whether we were right to have condemned, or whether we should not rather have praised. To repeat, then, let us divest ourselves of any emotional hindrances to clear thinking, and follow the discussion throughout with scientific precision.

Generally speaking, the process whereby these regular economic incomes are determined is simply the *price-determining* process, which we have discussed at length in earlier chapters. In the study of distribution, we shall find very few if any principles different from those already set forth. It will not be necessary to go outside the fundamental concept laid down in our second chapter, of a natural and quite definite economic order regulated by exchange. There is such an order, and Distribution, as a part of it, is governed by the same laws that govern the rest—the *laws of exchange.*

The correctness of this view may be suggested at least by a mere preliminary examination of the economic incomes which will show that each is in reality only the *exchange price* of something. Thus wages of all sorts—whether those of a mechanic in the automobile factory, for example, or those of

a salesman, advertising writer, or general manager — are nothing but the prices of labor services brought by the laborer to market. Interest also is plainly a price; for, as we have conceived it, the lender makes a sale of the service of waiting. Rent is the price paid for the use of land unmodified, or modified only by improvements which are indestructible. The case of profits, though on the surface less evident, is at bottom not materially different. The entrepreneur supplies the service of responsibility-taking. From the very nature of this service, *it cannot be sold directly;* but it is *virtually* sold, in that the entrepreneur unites this service with the services which he buys from other agents in the productive process, and *sells the total resultant* on the general market. Profits, therefore, are in effect a price received for a service supplied.

Another less direct but not unimportant sense in which incomes are determined through exchange processes should perhaps be mentioned in this place. The immediate income which most of us receive is of course an income of money or its equivalent. But to *realize* this income, to obtain gratification for our wants, we have to turn the money into commodities or services—bread to eat, clothes to wear, rides on the train, etc. Now, obviously, the amount of such goods which we enjoy must depend in large measure on the money prices of those goods. But this, in turn, is a matter of exchange. Hence the amount of goods we can enjoy—our real income—depends, again, on the processes of exchange.

But we need not be content with saying that economic incomes are the prices of services rendered, and that they are determined, through exchange processes, by the general laws of price. We can be more specific. We can ascertain to what type of economic goods the services in question belong, and can then readily infer what particular law is operative in determining their prices.

The services of labor, land, capital, and responsibility-taking, are what we designated in the last chapter on price as

Primary Factors, or Primary Cost-Goods. A primary factor or cost-good, as there indicated, is one behind which economic analysis cannot reach, which can be traced to no more ultimate source; and we should be able to see with little effort that the factors under discussion answer completely to this description.

The services of land are obviously primary factors, for they flow without man's assistance from a source which man has not made. Labor services again, for which wages are paid, flow from an unproducible source—labor power. For, although labor power is, literally speaking, produced and continually reproduced by the natural propagation of the human species, it is seldom, except under a slave regime, brought into existence primarily for market purposes; it occurs only as an incident to living and precedes the origination of economic motives; and we may accordingly look upon labor as one of the ultimate things in our analysis, something behind which we cannot go. An equally clear case can be made out for waiting-power and responsibility-taking. These factors are indeed supplied by men on their own free choice, and, unlike labor power, are supplied from preconceived motives of an economic sort; but they are preceded by no factors of a strictly economic kind—in reaching them we have reached a point beyond which economic analysis cannot penetrate.

We have seen that the services of labor, land, capital, and responsibility-taking are primary cost-goods. In consequence, wages, rent, interest, and profits, being the prices of these different services, are prices of primary cost-goods. Naturally, then, the particular law of price operative in determining these distributive shares is the one which determines the prices of primary cost-goods. But the principle governing the prices of such goods has already been stated in the chapter on Final Price-Determination. It follows that the principle there set forth is really the general principle which in the long run governs the regular economic incomes, wages, rent, interest, and

profits. It will be well to turn back and reread the principle as stated there. But for various reasons we shall present it here in a slightly modified form.

Principle. —*Every economic income tends to approximate that quantity of goods which constitutes an expression of the marginal significance to people at large of the actual output—when competition is free, the natural output—of the type of service rendered by the receiver of said income, and which also, in the case of free competition, constitutes an expression of the net marginal disutility involved in furnishing said type of service.*

Section C. Explanatory Comments

It will be necessary in the chapters which follow to relate the above principle in detail to each of the four economic shares. Before commencing that, however, we had best take a few moments to explain exactly what the principle does and does not mean, thus making perfectly clear what it is that the arguments will try to establish.

1. The principle is really a compound one, in that it asserts the coincidence of income both with the marginal *significance* of the service rendered, and the marginal *disutility of rendering it.* The full title of the principle, therefore, would naturally be the Significance-Disutility Principle. It is possible, however, to treat the two parts as separate principles; and this is perhaps desirable at times, because the first is accepted by some economists who would stick at the second. At any rate, the first part of the principle, which is much the more important and oftener the subject of reference, will certainly require a separate title of its own. We shall therefore frequently allude to the "Significance Principle," which affirms that the price of any primary factor tends to be such as will express its marginal significance; or, in other words, that any economic income tends to be such as will express the marginal significance to people at large of the service rendered by

the primary factor in question. Another designation occasionally used is the "Service Value Principle," the principle that each person tends to get an income which represents the value of his service or contribution.

2. Our principle affirms that every economic income tends to *approximate* (not equal) that quantity of goods which expresses the marginal significance attaching to the service rendered. If the marginal significance of a piece of land, for example, is $500, the rent paid for that land will approximate $500, but not necessarily equal it. If the labor of carpenters has a marginal significance of $5.00 per day, the wages of this class of workmen will tend to be $5.00 per day, but not necessarily equal to that figure. The reason for this will readily be understood after our analysis of the laws of price as applied to primary factors.

In the case of primary factors of the *fixed-supply kind,* the price, as we know, tends to be fixed at some point ranging from marginal significance down to, but not including, the first extra-marginal significance. If these two significances are somewhat widely separated, price may vary considerably under the same general conditions of supply and demand. For example, let us suppose that there are twelve sites of a certain grade, and that a section of the demand schedule for these sites runs as follows: 7 wanted at $550 or any figure below; 2 more wanted at $520 or any figure below; 3 more wanted at $500 or any figure below; and 3 more wanted at $440. Under these conditions rent *could not go above* $500, which expresses the marginal significance of the land, but it *could* go *below* that figure so long as it remained above $440, which expresses the first extra-marginal significance (where fifteen applicants would appear for the twelve pieces of land). That is, rent would only approximate the marginal significance, not equal it. Usually, however, the marginal and extra-marginal significances will be separated by very small intervals; not sixty dollars, as in the illustration, but one dollar, a few cents, almost nothing. Hence we will usually be safe in

thinking of the price of a primary factor as actually coinciding with the marginal significance.

In considering *producible* primary factors, waiting power, labor, etc., we have to say that price only "approximates" the marginal significance, for a different reason. Here, the limits of price-variation may not be fixed at all by significance, but by *disutility*. If the marginal significance of carpenters' labor is $5.00 per day, and the first extra-marginal significance $4.50, the wages actually received may not be determined by either of these. For laborers may not consider it worth their while to work at $4.50, may think their labor and pain can be well enough paid for only at $4.75—the marginal disutility price—and so they would prevent wages from falling to $4.50, the first extra-marginal significance price. On the other hand, there may be enough men to supply the demand who do not feel that they need as much as $5.00, even though their services might be worth that much to employers. In fact $4.90 meets their notion of the remuneration they must have, and at that price—expressing the first extra-marginal disutility of doing carpenter work—more workmen begin to appear than employers require. Hence the wages of carpenters will not rise as high as $4.90.

Clearly, then, the price of a producible primary factor may be hindered from equalling the marginal significance of that factor by the disutilities involved in supplying the factor. All these qualifications are, however, chiefly of theoretic interest. Marginal significance and marginal disutility will usually be separated by very small intervals. In general, it seems sufficiently accurate to say that the price of producible primary factors must be such as to express approximately the marginal significance of those factors and the marginal disutility of supplying them.

3. The principle teaches that each person tends to get an income which represents the *marginal* significance of his services. A given employer might be willing to pay eight dollars a day for carpenter service. But, taking employers all

together, those who are least desirous of having carpenter work done find the service is worth to them only $5.00 a day. Five dollars, in other words, expresses the marginal significance of that type of service. The employer who is willing to pay eight will therefore need to pay no more than $5.00 per day. This is, of course, the same principle that applies in the purchase of bread, meat, coffee, and other ordinary commodities. Whether ethically right or wrong, there is nothing peculiar about it.

4. In the second part of our principle, it was said that every economic income tends to be one which constitutes an expression of the *net* marginal disutility of furnishing the type of service. The word "net" is introduced to provide for the following feature. The act of supplying certain services may involve advantages as well as disutilities; university teaching, for example, gives men opportunity for the pursuit of scientific investigation, and practicing law gives men standing in the opinion of their fellows. Now, evidently, in cases of this sort, the reward received by the man who supplies the service does not need to be large enough to express the full disutility of his task, but only large enough to express that disutility minus the incidental advantages. An artist, scientist, or missionary, however great his labor, may find such pleasure in the exercise of his talents or in contemplating the result he hopes to achieve, that he will consider himself well paid if he receives only the barest living.

5. One final comment may perhaps serve to guard against misunderstanding. Earlier in the chapter it was said that in examining the principle of distribution we ought to free ourselves of all preconceptions as to its injustice. It should now be said with equal emphasis that we ought to lay aside any preconceptions regarding the justice of the principle. The latter kind of belief, accepted before examination of the facts, would be as fatal to our purposes as the former. In a later chapter, after the law is fully understood, we shall attempt a critique, presenting various reasons for and against

the present order, and these may lead us to adopt a conclusion favorable to one side or the other. But, for the present, we should seek to entertain no ethical thesis whatsoever. The law of economic distribution is neither moral nor immoral, it is simply unmoral; and as such we shall proceed in the following pages to analyze it.

CHAPTER XXVII

THE GENERAL PRINCIPLE OF DISTRIBUTION: COROLLARIES

In affirming the truth of the general principle of distribution which has been laid down in the preceding chapter, no one means to teach that that principle is precisely realized in the phenomena of actual life. The lack of such realization appears in both aspects of the principle but is especially notable on its significance side. Few contributors to production receive sums which exactly correspond to their contributions. Some get much more; a far larger number get less. But, in this respect, the Significance principle is not materially different from any other economic law. Those hypotheses which we assume as the starting point of all economic reasoning, absence of force, fraud, favoritism, monopoly, and other conditions interfering with freedom of competition and contract—are far from being realized. Further, were none of these manifestly abnormal elements present, we should still have human ignorance, folly, and inertia, to hinder any precise realization of the principle.

But, while this and all other principles of economic science are nowhere rigidly operative, economic phenomena do, in a broad way, come under their control. This statement is more conspicuously true of some other principles than of the one before us, but it applies to this one also. Such being the case, it follows that our Significance principle should not and can not with safety be ignored *in affairs of the practical world*. It frequently is ignored, as we know; for not a few well-meant but ill-directed reforms run directly counter to it. But the outcome of such reforms, just because they neglect the principle, is invariably a partial and sometimes a complete failure. To bring out the connection between such failures and

our principle, we will set down a few of its most important applications in the shape of corollaries. Most of these concern the significance side of our principle; but the last relates to its disutility aspect.

Corollary 1. *Attempts to fix arbitrarily the amount of any economic share whether by governmental or private action without changing the demand for, or the supply of, the particular type of service involved can succeed only within the narrowest limits.*

Illustrations of such attempts are found in the Statute of Laborers (1351) designed to keep wages at the old level in spite of the diminution of laborers through the black death and, more recently, in minimum wage laws and usury laws.

All these measures, we should note, are attempts arbitrarily to regulate the value of something *without changing demand or supply*. It is at times possible arbitrarily to change prices, but only on condition that one accepts the consequences in the shape of changed demand or supply. Thus, a monopolist may arbitrarily raise his price, but only on condition that he reconciles himself to smaller sales. So the workmen in a particular trade, if very strongly organized, may put up the wages of their trade, but at the same time they must be content with fewer jobs. So, again, if government insists on establishing a maximum price for some producible service below the cost of supplying that service, it will have to be satisfied with seeing the supply of the service fall off. If in any particular case the action taken to fix prices does not alter demand and supply conditions, it can, as the corollary affirms, seldom succeed at all.

The corollary, as stated, really contains two elements: (1) An admission that the shares can be, in some degree, fixed arbitrarily by legislation, and (2) A claim that this is possible only within very narrow limits. Let us begin with the first point.

1. *Some arbitrary fixing of the shares is possible.* (a) A share can always be arbitrarily fixed *within* the limits set by the Significance principle, as against any departure to a point *outside* those limits caused by a failure of competition or the intervention of illegitimate elements. For example, rent is not seldom driven *above* marginal Significance because of the ignorance or inertia of tenants; and government can then, without colliding with regular economic forces, bring it down to the proper level. (b) It is probable that there is nearly always some leeway between the marginal Significance and the first submarginal one, in which case, our principle fixes, not the precise amount of each share, but *only the limits* within which it may range. But one point within these limits will reconcile supply and demand as well as another. Hence, within these limits, legislation can arbitrarily fix on one particular point rather than another, without coming into collision with regular economic forces. For example, if wages anywhere from $1.20 to $1.40 would reconcile demand and supply, the law might fix them at $1.40, and not contravene our principle at all. (c) It is admitted that the prices of labor services or capital services or land services can be fixed at points somewhat *outside* the limits set by the Significance principle because of the inertia or weakness of buyers or sellers of those services. But this being true, it is surely reasonable to claim that *government,* when public policy demands it, can take advantage of similar weaknesses consciously to fix prices somewhat outside the limits set by our principle.

2. *Such arbitrary fixing of the economic shares is possible only within very narrow limits.* (2) Law can not long compel people to pay for anything *more,*—anyhow *much* more,—than it is worth to them. (b) Law can not long hinder people from paying for anything *as much,*—anyhow *almost* as much,—as it is worth to the marginal buyer; for this is the only way to insure that buyers at or within the margin will get the goods, as against buyers outside the margin. (c) Law can not long compel people to furnish anything for a price much

below that which expresses to them the disutility incurred in furnishing that thing. (d) Law can not long hinder people from taking a price for their service substantially as low as that one which expresses the disutility incurred in furnishing said service.

Corollary 2. *Broadly speaking, the share per unit of each class of producing agencies varies inversely as the size of that class.*

Abundant land makes rent low; abundant capital makes interest low; abundant labor makes wages low. This obviously results from the joint action of our Significance principle and the law of diminishing marginal significance, page 261. Each productive agent tends to get an amount which expresses the significance of the contribution made by the marginal member of his class. But, since the larger his class the smaller will be the significance of the contribution made by the marginal member, therefore, the larger his class the smaller the income which each member will get.

In saying this, as in stating any other scientific principle, we of course assume *continuity of conditions.* An increase in the volume of any factor would not necessarily lower the rate of return if accompanied by the introduction of new and more efficient methods of employing that factor.

Corollary 3. *Broadly speaking, the share per unit of each class of producing agencies varies directly as the size of other classes which co-operate with it.*

Increasing the size of one class of producing agencies increases the share of the others. For example, if capital increases in volume, not only does the rate of return to capital tend to fall, it is equally true that the rate of return to labor and land also tends to rise. The argument should be easy to follow.

(1) According to the last corollary, the condition supposed *lowers the rate of return* to the changing factor. (2) Since

the *total* going to said changing factor out of the product of earlier units of the combination is fixed by multiplying the number of units into the rate, said total will be *smaller* than before. (3) In consequence, the portion of the product of earlier units going to the other factors, being that product minus the total going to the changing factor, will be *larger* than before. Take a simple illustration. Ignoring capital, let us suppose that a certain piece of land will yield to one man's labor 14 bushels of wheat; to the labor of two men, 20 bushels; to that of four men, 26 bushels. When, now, laborers are so few that land needs to be worked in the first stage only, the whole product, 14 bushels, will go to labor. When it becomes necessary to put on a second man, he will add only 6 bushels, therefore will get only 6 bushels, and *the first man also will get only 6 bushels,* thus giving the landlord 20 minus 12 or 8 bushels rent. So when a third man has to go on, his significance and so his share will be represented by 4 bushels; the shares of laborers 1 and 2 will fall to the same figure, and the total of the landlord will become 24 minus 12, or 12 bushels. Thus, increasing the number of laborers lowers their share and raises that of the landlord.

That *diminishing* the size of one class diminishes the shares of the others, may be shown merely by reversing the preceding arguments.

Corollary 4. *Increase of population in itself tends to lower all shares but rent, most of all common wages.*

This is really a sub-corollary from Corollaries 2 and 3. An increase in population means normally an increase in the size of all classes of producing agencies except land. Hence an increase in population would normally mean a diminution in the shares of all classes except those receiving rent. Further, this diminution would fall most heavily on wages for the reason that increase in population means a greater increase in labor power than in capital, that is, in the power to wait or assume the responsibilities of production.

In opposition to the teaching of this last corollary it is sometimes argued that increase in population does not lower wages for the reason that each person brings into the world capacity to *produce* as well as capacity to *consume*. He adds, therefore, to the supply of goods just as much as to the demand. This merely shows that there is not ordinarily any danger that the new laborer will be unable to get any wages at all. It does not show that he will be able to get as high wages as before. Since the stock of natural factors in production and the stock of capital are not increased by the incoming of the new laborers, therefore the marginal significance of labor, and with it the wages of labor, must tend to be lowered.

Again, it is sometimes argued that increase in population, in that it makes a larger market and so justifies the resort to extreme specialization, large scale production, etc., really raises marginal significance rather than lowering it, and so raises the shares going to labor and capital. This is doubtless possible but not, in my opinion, probable. In most countries population has long since reached the size which would justify a resort to the most efficient methods. If a particular community is failing to take advantage of the possibilities of large-scale production because markets are too small to justify a resort to that method, this smallness of the markets is probably not due to lack of the population necessary to make a large market, but to the lack of those facilities for transportation and communication in general which are necessary to coalesce the different small markets into one large one.

Corollary 5. *Any cause which restricts competition among the persons who supply a particular type of service tends to increase the rate of income received by the said persons.*

It is of course a fact familiar to the student that producers in all lines are disposed to adopt measures to limit competition, each in his particular line. Monopoly in some form or degree is a condition of things which, consciously or unconsciously, almost every one tries to see realized in his special field. Per-

haps the entrepreneurs in some industry, for example, sugar production, form a trust, thus establishing a combination so wide-reaching as to approximate monopoly. Or perhaps the men engaged in building houses in a certain city form an agreement whereby they promise not to compete in the fullest sense against each other. Or perhaps the painters combine to restrict their numbers by refusing to take on more than a fixed number of apprentices at any one time. Now, it is doubtless hoped in each of these cases that the action described will increase the returns to the persons interested; the entrepreneurs in sugar and the building contractors will get larger profits, and the workmen in the case of painting will get larger wages. Further, it it doubtless true that the result thus hoped for is largely realized. Such restrictions of competition do usually increase the incomes of the persons interested. The reasons are plain. Diminished competition means decreased output, therefore higher marginal significance, therefore higher price, for the service rendered.

The principle, as stated, says "rate of income" rather than simply "income" in order to provide for cases where restricting of output might increase the return per unit of service performed but not per person. Thus, the whole body of laborers might unite to keep, say, one-fifth of their number idle, hoping thereby to increase the total income of their class;* while in fact they *might* thereby lower the total though increasing the rate—that is, the income per unit of service or effort.

Corollary 6. *Any cause which restricts competition among the persons who supply a particular sub-class of services tends to lower the incomes of the persons who supply related sub-classes of services.*

* It probably can be shown that as a mere matter of economic theory this is a *possible* result. It does not, however, seem of sufficient importance to reward the effort.

As we have seen, it is very common to try to limit the output of one's own type of service in order thereby to raise the price of it. It is less common, but by no means rare, to hear persons who have inaugurated this policy attempting to enlist the sympathy and support of others as if the public in general or producers in general, were to gain by it. That persons sometimes succeed in this attempt does not alter the facts of the case. Their position is, generally speaking, quite untenable. We may sympathize with their aims, may even be glad to suffer some loss in helping them to realize those aims; but we are bound to experience a loss—*the policy in question is against the immediate economic interests of all but the persons directly concerned.*

The explanation of this fact in so far as it concerns related workers, should call for no elaboration. Restricting competition within any sub-class of productive agencies, say painting, drives the persons shut out of that sub-class into related sub-classes,—carpentering, masonry, etc.,—thereby increasing the size of said sub-classes. As a consequence, under the working of Corollary 2, the share per unit of those classes is lowered.

Corollary 7. *Broadly speaking, improvements in method through discovery and invention tend more especially to increase interest and profits.*

Such improvements, by increasing opportunities for the employment of waiting and risk-taking, increase the marginal significance of those factors, and so fulfill the conditions of the Principle. This is not to say that improvements in method bring no advantage to laborers;—but any advantage the laborer gets comes *indirectly* in lowered prices and in the greater quantity of goods which lower prices enables him to buy.

As already noted, the disutility part of our principle is of much less importance than the significance part. Still it is not altogether negligible in practical affairs. In so far as any

class of persons depend for their income on supplying some primary factor which involves a disutility, we can not arbitrarily cut down that income without more or less interfering with the supply of that factor. This is the old story of killing the goose that lays the golden egg. One good reason for not interfering with the freely made price of a primary factor and the income derived from it is that only so can we be sure that the stock of said factor will be assigned to its proper tasks. But if the factor has a disutility cost, there is another reason for not interfering with its price and the income derived therefrom, namely, that, by pursuing such a policy, we are liable to cut down the stock or output of the factor. This point may be formally stated in the following corollary.

Corollary 8. *If the primary factor from which an income is derived has a disutility cost, all artificial attempts to reduce that income are likely to reduce the supply of said primary factor.*

Illustrative Problems

1. Suppose that at a certain date, competition being free and general conditions normal, the rate of wages for ordinary labor is $1.50 per day; and suppose, further, that, under these conditions, the legislature passes a law forbidding any one to pay or receive wages less than $5 per day.

Do you believe that this would result in giving every one wages of $5 per day? Why?

2. "The logic of their (the orthodox economists') teaching, has been that wages which were *determined by free bargaining* between capital and labor would be just or reasonable wages."

Point out wherein the above is incorrect, or at least inadequate, as a statement of the real teaching of the economists.

3. Quite soon after her entrance into the war now being waged in Europe, Great Britain undertook to raise a large revenue by the exceptionally heavy taxation of the industries especially connected with war, that is, the industries engaged in producing guns, ammunition, etc. What argument could be made against that policy?

CHAPTER XXVIII

RENT

In Chapter XXVI we presented the general principle under which the four economic shares in distribution are determined. In this and the three chapters following, we give a somewhat more detailed study to each of the shares taken separately. We begin with rent.

1. The Nature of Rent

As understood by the general public, the term rent commonly means the consideration paid for the use of any tangible object, such as a house, a horse, a boat, an automobile, or a piece of land. Economic usage is much narrower, for it includes not hire in general, but only the hire of land. It does not include even the hire of buildings, fences, or other removable or impermanent improvements standing on the land. When trying to be very precise, indeed, it speaks of rent as derived from the original, indestructible elements only of land, excluding all improvements wrought by man, even those of the most permanent sort. As a matter of fact, this usage is not perfectly feasible for the reason that some improvements are so indestructible, so irremovable, so altogether permanent, that they become in effect inseparable parts of the natural thing itself. Thus a tile ditch laid in a field becomes once and for all a part of it; no one will ever take up the ditch, no one will need to give it more than an insignificant amount of repairs, and it will last indefinitely. Likewise the increased fertility of the land resulting from its drainage is a quality which, though originally created as an improvement, can never again by any probability be extirpated, so long as the land itself endures. In consequence, the

common practice is to interpret economic rent as paid, not only for unimproved land, but also for *land improved in the ways indicated.*

The difficulty which is usually met in the way just indicated, is by some writers met by refusing to distinguish the hire of land from that of other goods,—calling them all rents or hires. This practice has not become general, and, in my opinion, is of doubtful expediency. The chief reason is that, in connection with certain problems of value determination and particularly in connection with the incidence of taxes, strictly non-producible goods, fixed-supply goods, behave in a quite different way from ordinary producible goods, and *improved land behaves generally like the strictly non-producible goods.*

2. The Origin of Agricultural Rent

The existence of rent, as the price of an economic good, is on the surface not difficult of explanation. Land is limited in amount, the uses of any one piece are limited in number, and hence the total number is limited; land uses will, therefore, command a price if there is a demand for it, at some price above zero, in excess of the stock. Further, since much of the land is inferior in quality or position, the demand for the uses of some pieces—the better ones—will exceed the supply long before the demand for all the uses of land has come to exceed the total stock. Hence uses of those *better pieces* will command a price.

But, while the existence of rent presents nothing unusual or difficult of explanation, various reasons have led to the setting up of some very elaborate theories. These theories are not inconsistent with the general explanation given in the preceding paragraph, but merely more detailed and thorough. The statement for agricultural rent which best commends itself to the present writer may be called the Surplus theory. It runs as follows:—

We begin with the hypothesis that all the land is of one grade, and that its productive efficiency is absolutely fixed. Such a hypothesis is, of course, in the highest degree unreal, but it will serve us best in bringing to light the essential cause we are seeking. At the outset, then, let us take for consideration the tract of land accepted by classical convention, a small completely isolated island. On that island there are 1,000 acres of wheat land, each acre of which can produce 30 bushels, no more and no less, at a cost of just 30 cents per bushel, not counting any charge for the use of land. If all the land is used, the output will then be 30,000 bushels costing $9,000.

Such being the technical conditions, let us now study the economics of the case. Suppose that at a certain time the demand for wheat at 30 cents is only 2,000 bushels, while it falls to 1,900 bushels at 31 cents, 1,850 at 32 cents, and 1,800 at 33 cents. With this demand schedule could there be any rent? No; for since the possible output of wheat (30,000 bushels) is much greater than the demand at any price as high as cost (2,000 bushels), most of the land will not be used at all; and the potential competition of the owners of the idle land will hinder the owners of the land under cultivation from exacting any payment for its use. Again, under the conditions named, what will be the price of wheat? It will be exactly thirty cents. It cannot be lower, because at any lower price—which would be a price lower than cost—wheat would not be produced at all. It cannot be higher; for, it is possible at a cost of 30 cents to furnish more than is demanded at a price of 50 cents or higher, and hence competition of producers will hold price down to that figure. Finally, these two conclusions—the absence of rent and a price of 30 cents per bushel,—will still hold so long as, with price as high as 30 cents, demand can rise only to 30,000 bushels.

But change slightly the hypothesis. Suppose that the demand increases, so that 31,000 bushels are wanted at 30

cents, 30,000 at 31 cents, 29,000 at 32 cents. Plainly, price will now advance to 31 cents; for only 30,000 bushels can be produced and they are all wanted at 31 cents. But, since cost is only 30 cents, this new price will give farmers a surplus over ordinary returns to industry of 1 cent a bushel or 30 cents an acre. This surplus will naturally invite producers, who in other lines are getting merely the usual returns of industry, to offer to the land owner something for the right to use the land. The present tenant will raise the offer; the outsiders will come back with a higher bid; and so on till the competition of the two has caused the whole 30 cents to be turned over to the land owner. To assume that the land owner and the farmer are not different persons, that the land owner himself may work the land, does not alter the result. Under the conditions set forth, price inevitably rises above cost of production, bringing into existence a surplus. This surplus is first received by the farmer, and it *remains* with the farmer if he is also land owner; while, if he is only a tenant, he is driven by the free working of competition to turn over that surplus to the one who is the owner. The surplus thus received by the farmer and retained by him if he is owner or, if he is tenant, turned over by him to the one who is owner, *constitutes the economic share known as Rent.*

Looking back over this case, we see that the immediate cause of the rent surplus is the appearance of a price in excess of the cost of production. But the cause of this higher price, and so the more ultimate cause of rent, is to be found in the fact that *the demand for wheat at a price higher than cost is at least equal to the whole possible output;* or, put the other end to, in the fact that the possible output is no more than equal to the demand at some price above cost.*

*A more common but less precise statement would be this: The ultimate cause of rent, under the conditions named, would be found in the fact that *the demand for wheat at the cost price exceeded the whole possible ouput,* or the whole possible output was smaller than demand at the cost price. This method of putting such cases as-

We have seen how rent originates in the very simple, but very unreal, case furnished by our first hypothesis. Let us now change the hypothesis so as to bring it a step nearer to the facts of life. Suppose that the wheat land of our island, instead of being all of one grade, is of four grades, though as before the output of each acre in each grade is absolutely fixed. There are 100 acres which will produce each 30 bushels at a cost per bushel of 30 cents; 200 acres which will produce each a little under 26 bushels at a cost per bushel of 35 cents; 300 acres which will produce each 22 ½ bushels at a cost per bushel of 40 cents; and 400 acres which will produce each 20 bushels at a cost of 45 cents per bushel. In each instance, greater expenditure will make no increase in output, while any smaller expenditure will produce no output at all.

When would rent appear under these new conditions? If the demand for wheat were limited to 2,000 bushels, then, as in the previous case, there would be no rent; since to produce that much wheat would require only two-thirds of the 100 acres of best land, leaving the other third, as also all poorer lands, idle, and the competition of the idle 33 1/3 acres of best land would prevent any charge being made for the use of the 66 2/3 acres actually under cultivation. In like manner, the price would be, as before, just equal to cost, 30 cents. Manifestly the same propositions would be true, were demand 2,100 bushels, or 2,200, or 2,300, or anything less than 3,000. But suppose, now, that the demand schedule becomes 2,100 bushels at 30 cents, 3,000 at 31 cents, and 2,900 at 32 cents. At once price must rise to 31 cents; for the whole output which farmers can afford to raise so long as price is under 35 cents (3,000 bushels), is wanted at 31 cents. But a price of 31 cents gives a surplus over cost of 1 cent per bushel or 30 cents per acre on the best land; and

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sumes—which doubtless is commonly true—that a demand in excess of output at *one* price means a demand *at some higher price equal to* output.

this surplus, as in the former case, will be driven into the hands of land owners by the competition of possible tenants; that is, rent will now come into existence.

The explanation of rent is, moreover, virtually the same as before. The immediate cause is a rising of price above cost of production on the rent-bearing land. But the cause of that rising of price, the more ultimate cause of rent, is the fact that the demand at some price above cost is at least equal to possible output on the best land, or, turned about, that the output *of the best grade of land* is not greater than the demand at some price above cost. In short, it is the limited stock and limited capacity, not this time of all land, but *of land of the best grade,* as compared with the demand for wheat, which causes rent. Land being of various grades, a scarcity of the best land makes itself felt in raising price and starting rent even though land as a whole cannot be said to be scarce. The existence of rent might thus be said to depend in a way on the fact that lands were of different grades. But the particular implication (in that statement) on which rent depends is that *not all the lands are of the best grade,* rather than "that there are inferior as well as superior grades."

The above statement shows how, in our second hypothetical case rent would *come into existence.* But another fact concerning rent besides its mere existence must now be noted. Let us suppose the demand schedule for wheat to advance by successive steps till a part of it reads as follows: 3,000 wanted at 36 cents, 3,100 at 35 cents, 3,200 at 34 cents. At first sight it might seem that price would now become 36 cents; since 3,000 bushels, the whole product of the best land, is now wanted at 36 cents. But a new element has come in. According to the original hypothesis, there are 200 acres which can furnish each 26 bushels of wheat, a total of 5,200 bushels, at a cost of 35 cents per bushel. By this time, price will have reached 35 cents, for 3,100 bushels are wanted at that price; consequently farmers can profitably work the 35 cent

land and will of course begin to do so. But, since 5,200 bushels can be furnished off these second grade lands, the 3,100 bushels wanted at 35 cents can easily be supplied at this price. Price, therefore, will stop at 35 cents, instead of going to 36.

Further, price would remain stationary at 35 cents, even were demand to increase so that there were wanted at 35 cents 3,500 bushels or 4,000 or 5,000 or any number not greater than 3,000 plus 5,200. But, if price remains stationary at 35 cents throughout all these changes in demand, then obviously the surplus over cost will also remain stationary, and therefore rent also will remain stationary. In short, *the cultivation of the inferior lands acts to check rent;—the existence of inferior land is not a condition on which the arising of rent depends,*—as is often said—*but rather a condition on which the keeping of rent within bounds depends.*

In the hypothesis just considered, we have already restored one important fact of the real world—the variation in grades of land—which was purposely dropped out of our first hypothesis. Let us now restore another fact. Suppose that the possible output of each acre of land, instead of being absolutely fixed, varies in some degree with the amount of expenditure. Further, with an expenditure of $9 each acre of land reaches the point of diminishing returns; beyond this, increase in expenditure will for a time secure an increase in output but one less than proportionate to the increase in expenditure. Thus while $9 spent on the best land yields 30 bushels $12 would yield 38 bushels; $15, 44 bushels; and $18, 47 bushels; after which no increase is possible. Similarly for the second grade of land, while $9 spent on it yields 26 bushels, $12 would yield 32 bushels; $15, 34 bushels; and $18, 38; after which no increase could be secured. And so on with the other grades of land. Under these conditions, as a little computation would show, when price reached 37 cents, output could be increased 800 bushels from the best land; when price reached 50 cents, output could be

increased 600 bushels from first grade land and 1,200 bushels from second grade; when price reached 75 cents, output could be increased 800 bushels from second grade land and 1,200 from third grade land.

What will be the effect of these new conditions? Let us suppose the demand schedule to have advanced till a part of it reads as follows: 8,000 bushels wanted at 39 cents; 8,500 at 38 cents; 9,000 at 37 cents; 9,500 at 36 cents. Under our former hypothesis, — that the productivity of each grade of land was absolutely fixed,—this demand schedule combined with the output schedule would give us a price of 38 cents. It could not be above 38 cents; since this would cut demand down to at least 8,000 while as much as 8,200 could be furnished for 35 cents. It could not be below 38 cents; for at 38 cents 8,500 bushels would be wanted and only 8,200 could be furnished, and so the competition of the unsuccessful buyers would hold it at that point. But, while under the first hypothesis the new demand schedule would give us a price of 38 cents, under the second hypothesis it would give a price of only 37 cents. For, when price reaches 37 cents we can, through the more intensive cultivation of the best land, increase output by 800 bushels, making a possible total at that figure of 9,000 bushels,—3,800 from the best land and 5,200 from the second best; and 9,000 bushels just satisfies the demand at 37 cents and so hinders a rise to 38 cents.

Thus, the new hypothesis has hindered the price from rising as high as it would have risen under the old. But anything which hinders price from rising thereby hinders rent from rising. That is, *the more intensive cultivation of soils already in use checks the rise of rent.* The principle that even after the stage of highest net efficiency has been reached output can be increased though at increasing cost per unit, furnishes a condition under which rent may be checked. In other words, the so-called law of diminishing returns—which might better be named the law of *increasable returns at diminishing rate*—in one of its phases furnishes a possible

check on the growth of rent; and from this standpoint takes its place along with inferior soils, the influence of which was described above.

The discussion just preceding has shown how the law of diminishing returns acts to check the growth of rent. We can hardly leave the matter without remarking emphatically that, looked at in another of its phases, this same law is a *sine qua non* of rent. The returns from the same piece of land are *increasable;* hence a check on rent is possible. But the possible increase is *at a diminishing rate;* hence, before the increase which checks rent can take place, price must rise above cost on the old plan of cultivation, and it is this rising which causes rent. If output could be increased indefinitely without any falling off in the rate, there could never be any rent; for supply would always keep pace with demand at cost price,—without any rising of price above cost. We *could* have rent, were returns absolutely fixed; we *do* have rent with returns fixed by an elastic limit, a limit increasable but at a diminishing rate; but we *could not* have rent, were returns indefinitely increasable without any falling off in the rate.

We have set forth the process by which rent would come into existence under each of three different hypotheses, each being modified so as to bring it nearer to actual conditions than its predecessor. As a matter of fact, even the third hypothesis would differ from actual conditions in not a few particulars, and one difference at least is of sufficient importance to deserve special comment. In introducing the condition of gradations in land, it was assumed that the different grades varied in productivity by considerable intervals. The best produced 30 bushels per acre; the second best, 26 bushels; the third, 22 ½ bushels. But there can be little doubt that, in the actual world, lands vary in productivity by much slighter differences than these. Still keeping as near as possible to our original figures, the best land yields, let us say, 30 bushels per acre; the second grade 29; the third, 28,—

the differences being much smaller, though even yet very likely too large.

Does this new condition compel us to alter our explanation of rent? Not in any essential feature. To simplify matters, let us ignore the output per acre, and merely assume that, without pushing cultivation beyond the point of highest net efficiency, wheat can be raised on the different grades according to the following schedule: on the best, 3,000 bushels at a cost of 30 cents per bushel; on the second grade, 5,000 bushels at a cost of 31 cents; on the third grade, 7,000 bushels at a cost of 32 cents a bushel;—it being assumed also that people do not take account of differences smaller than a cent. How, now, would rent come into existence? Our previous answers fit easily enough. As soon as demand at some price above 30 cents equals or exceeds 3,000 bushels,—the output from the best land—price will rise above 30 cents, thus giving a surplus over cost which will be retained by the farmer if he is also land owner but which, if he is only a tenant, will be driven by competition from his hands into those of the land owner.

But what part is played by the new possibilities of production at 31 cents, 32 cents, and so on? Just such a part as was formerly played by the possibility of production at 35 cents. Since the output can be increased 5,000 bushels as soon as a price of 31 cents is established, then, although the demand schedule may be one which under the former hypothesis would have raised price to 32 or 33 or 34 or 35 cents and so raised rent to corresponding heights, price may now be checked at 31 cents, and so rent kept at 1 cent a bushel or 30 cents an acre. Thus, suppose the demand schedule to be: 3,500 bushels at 35 cents; 4,000 at 34 cents; 4,500 at 33 cents; 5,000 at 32 cents; 5,500 at 31 cents. Under our former hypothesis, price would promptly rise to 35 cents, giving a rent on the best land of $1.50 per acre. But, under the new hypothesis, price could not rise above 31 cents, since at that price 8,000 bushels can be furnished and only 5,500 are

wanted; and rent could, in consequence, reach only 30 cents per acre.

To summarize the above discussion: (1) The detailed process whereby rent comes into existence is as follows: demand at some price higher than cost becomes at least as great as possible output of best land cultivated to point of diminishing returns; this causes price to rise above cost; this gives to the farmer a surplus over ordinary returns; the existence of this surplus leads to the competition of possible tenants in trying to secure the use of the land by paying a price therefor; and this competition goes on till the whole surplus is turned over to the land owner as rent. (2) Bringing into cultivation inferior soils tends to check the rise of rent. (3) Cultivating more intensively soils already in use tends to check the rise of rent.

3. Rent and Disutility

In Chapter XXVI it was maintained that the disutility cost involved in supplying the three factors of human origin, labor, capital, and responsibility-taking, had a part in determining their price. That price, we said, must be one which expressed both the marginal significance of these factors in production, and the marginal disutility of supplying them. In other words the three distributive shares—wages, interest and profits—which constitute the prices paid for those three factors must express their marginal significance in production and their marginal disutility. But can the same be said of land, and the price of its services which we call rent?

With regard to the disutility half of the principle, the answer is of course a negative one. In order to have a real disutility cost, a factor must be of human origin; hence land, which is not of human origin can have no disutility cost A particular piece of land may, like any other factor in production, have an opportunity cost. If it is needed for one pur-

pose and we desire to put it to another purpose, the advantage of the former will have to be sacrificed, and this fact will probably have a part in determining the price. But this sacrifice is not a true disutility cost. It follows that rent is determined solely by the significance or utility of land or its services. This significance or utility is probably for one reason or another more easily ascertained for land than for any of the other factors; and so the significance or service-value principle is more fully realized for land than for labor, capital, or responsibility-taking. But if land has no disutility cost, no disutility cost can influence its price. The disutility half of our principle has here no application.

This matter, however, should not be left without further comment. While the furnishing of land services involves no original disutility, it does involve *derivative* disutilities. Under normal conditions, the market price of any piece of ground will approximately equal the capitalization of its net income. In consequence, persons desiring to become rent-receivers will be obliged to invest their capital in the land, just as if it were a producible commodity,—gaining the position of a rent-receiver will therefore mean assuming the ordinary capitalistic disutilities, abstinence, waiting, and risk-taking. Further, this process of capitalizing the income of land will almost certainly work itself out in such a way that the income pretty closely expresses the disutilities created. In consequence, it might seem that we ought to affirm that rent must be so determined as to be an expression of the derived disutilities of supplying the land services for which it is received. This, however, would not be true. The disutilities follow rather than precede the appearance of the rent. Hence they have no share in determining the rent. It is rather the price of the *land* which must be so adjusted as to make the rent an expression of the disutilities involved in furnishing land services.

CHAPTER XXIX

INTEREST

The subject of Interest has probably given rise to more theoretic analysis than any other part of Economics. This is due partly to the serious inherent difficulties of the subject, partly to the fact that such theoretic analysis, in the case of Interest, connects itself with certain great practical controversies. Of these controversies, the most important concerns the ethical legitimacy of interest. From the earliest times there has been much opposition to this particular source of income as being essentially immoral. This opposition, seeking to strengthen itself theoretically by showing that there are no valid grounds on which the existence of such an income can be justified, has devoted enormous energies to the study of the nature and origin of interest. Thus a purely practical problem has given immense stimulus to studies purely theoretical. It seems best, therefore, that we should here enter into some phases of the subject quite fully; though what we have to say will not be unfamiliar, since it has been, in great part, anticipated in previous discussions.

1. The Interest Phenomenon

Our first task must be to develop clear and definite ideas of what interest is. Its most familiar manifestation is seen in connection with the ordinary money loan. A lender puts at the complete disposal of a borrower a sum of money; this money or an equivalent sum, is to be returned to the lender after a stated period; and, in return for the advantages which are supposed to accrue to him from this operation, the borrower makes to the lender a special payment amounting to a small per cent. of the sum loaned and proportioned to the length of

time for which the loan runs. This special payment is of course the interest we are talking about.

The type of interest just described is commonly called *contractual,* or, sometimes, *explicit* interest. It is open, avowed interest. But there are besides many business situations in which interest, though just as truly present, is more or less concealed—*implicit* interest. Consider for example the relation between the prices of ordinary producible goods and their costs in other goods, current labor, and risk-taking. Each unit of product has a price high enough to cover not only the items just enumerated, but also interest on the invested capital,—the sum of money which the entrepreneur could get from the sale of his whole outfit. This must be so, the business man would say, because otherwise no one would devote his money to manufacturing commodities; instead, every one would *lend* it, getting contractual or explicit interest.

This is inadequate if it is meant to be a *complete* explanation of interest; for sums of money are, so to speak, merely *formal* capital; and the deeper explanation must be found in the inter-relations of *those things which borrowed money is used to buy* rather than in money relations as such. But it contains this much truth: it is in the market for money-loans that the various forces which are causing interest to exist and determining its rate, most completely manifest themselves. Accordingly, the business man's method of arguing at this point supplies a clue which will often tell us *where to look for implicit interest.* Wherever we find a person occupying an economic relation which deprives him of an opportunity to make money loans and receive explicit interest therefor, we may be sure he is in some way receiving implicit interest.

Illustrative Problems

1. How does the interest phenomenon manifest itself in the price of a dwelling house?
2. In the hire (rent) of such a house?

3. In the price of a building site?
4. In the fares charged by a steamship in the transatlantic passenger service?

2. Essential Nature of the Interest Phenomenon

The surface marks of the interest phenomenon have probably been shown with sufficient distinctness in the preceding discussion. When, however, we inquire as to the real inner nature of interest we find ourselves beset with more serious difficulties. Out of a rather confused mass of writing on this subject we may distinguish two principal theories: the *Use* theory and the *Exchange* theory.

The Use Theory is almost universal in the business world and has in former years been widely held by economists. According to this doctrine, interest is a payment for the *use* of capital; capital being conceived either as a sum of money or as money value embodied in some capital good. If a manufacturer borrows on his ninety-day note $600 to buy 200 tons of coal for his engines, he obviously gets all the uses of the coal but in addition he may be said to get a ninety-days' use of the $600 embodied in the coal. Similarly, if Mr. Elder buys a $1,200 automobile on a one-year note, he enjoys all the services which any cash buyer could realize from the machine and in addition he is thought of as having the use of $1,200 for a year's time.

In explaining the *exchange* theory, our best procedure perhaps is to begin by pointing out the fault in the use doctrine. No one denies, of course, that the borrower or the credit buyer gets some advantage, service, or utility, in addition to the services of the coal or the automobile; if he did not, he surely would not pay the interest. But the use theory, many thinkers affirm, errs in its method of characterizing this advantage. The advantage of the man who buys goods with borrowed money or on credit consists, not in receiving a greater sum of utilities than the men who buy similar goods with

their own money or for cash, but in paying what is to him a smaller price. He enjoys all the prerogatives of a man who has acquired ownership in goods by the process of purchase, although he has not made the complementary sacrifice naturally involved in a purchase,—has not in the deepest sense bought the goods at all. In short, his additional advantage over the non-credit buyer consists in *postponing the sacrifice* necessary to becoming the rightful owner of the utilities of the goods.

The *exchange* theory as to the nature of interest will now be readily comprehended. Interest, it affirms, is in reality a bonus, a premium, a something to boot which the man who buys goods now but does not himself pay for them till some future time, gives to the person who enables him to effect this transaction. Or, looking at the operations from the lender's side, interest is a bonus or premium which the man who relinquishes his right to goods now but gets his pay only at a later date, receives for making this exchange. To put the theory in more conventional form: Whenever present goods are exchanged for future goods, a bonus or premium is paid *by* the party who brings to the exchange future goods, *to* the party who brings present goods; and this bonus or premium constitutes interest. Obviously, this description best applies to *contract* interest, where one particular kind of goods, especially money, is borrowed with the understanding that *just the same kind of goods* is to be returned after a stated interval. But the advocates of this phraseology hold that it describes the real nature of every transaction wherein interest figures at all, even to the most obscure cases of implicit interest. The entrepreneur who buys raw materials, machinery, and labor, and combines these to produce shoes *is in effect exchanging present for future goods;* for the raw materials, machinery, and labor, though literally existing in the present, *are not truly present goods,* but only inchoate shoes, shoes in the making, shoes to be.

Into the real merits of this controversy between the use and exchange theories, it will scarcely pay us to enter. In general, we shall assume that the antithesis between the two is not as great as their respective advocates imagine. The man who exchanges present for future goods must, as a condition of doing so, be in a position to wait,—he must have a surplus of wealth which, measured in value, equals the goods he exchanges for future goods. Speaking figuratively, such a man must be the owner of waiting-power; and, this will usually be in the form of general wealth,—money or claims to receive money. To say that he sells the use of waiting power does not seem essentially different from saying that he exchanges present for future goods.

3. How Interest Comes to Exist

In beginning the explanation of interest, it is natural to make a remark similar to that with which we introduced the explanation of rent. Interest exists because the demand (at some price above zero) for a certain thing is in excess of the output of that thing;—in other words, because there is an extra-marginal demand for it. To explain the value of any object we have only to show that there are good reasons why there should be a demand for that object and good reasons why the supply should be limited. We are not called on to show that it *must* have value, but *only to point out the conditions which, if fulfilled, will insure its having value.* In the case before us, the thing commanding a price is the *service of waiting.* In general, then, our task is to show why there would naturally be a demand for waiting-power and why its supply would naturally be limited.

Among the reasons why there would naturally be a demand for waiting-power are the following. (1) Overestimate of the importance of present wants (spendthrift borrowing), (2) anticipated increase in income, and (3) the superiority of time-consuming methods in the production of goods or services.

The first of these reasons needs little comment. Overestimation of present as compared with future wants, the conviction that one's immediately pressing desires are important above all things else and must be satisfied—this may be a foolish reason for borrowing, but it is plainly a very real one. The second reason is almost equally familiar. Many people, particularly the young, think themselves justified in borrowing, even if only to have a little more pleasure in the passing hour, because they confidently anticipate larger incomes in the near future.

The third and perhaps the chief reason why there is a demand for waiting power has been alluded to in an earlier chapter. It is that, by using waiting-power we can make our productive efforts relatively more efficient.

In trying to meet an immediately pressing need for shelter we may stop in the forest and with a few hours' labor build a hut of grass or boughs. But suppose that instead of trying to finish the shelter today for immediate occupation we make use of waiting-power and, in the course of a few weeks, erect a house of wood or stone. This shelter will consume not only waiting-power, but labor and resources; and it will consume perhaps ten or a hundred times as much labor and resources as the hut of boughs. But, because of the waiting element put into it, the length of service it will render will increase much more than proportionally to the increase in labor and resources consumed. Here then is an excellent reason for choosing the method which consumes waiting-power. It enables us to take advantage of the solidity, hardness and durability of wood and stone and so, in the end, we have a house that will last five hundred times as long as the other type of structure, although it has cost us in effort and resources only one hundred times as much.

Similar illustrations have already been cited. By waiting while he constructs a net and a canoe, the fisherman is enabled in the long run to catch more fish per unit of labor expended than he could if he began at once fishing with his naked

hands. The woodsman who makes an axe to cut down a tree and the miller who builds a dam and race for grinding flour similarly increases the efficiency of his labor. Still other cases are found in those types of production which are aided by or perhaps wholly dependent on some slow natural processes. Thus vegetables need a season to reach maturity; grape juice can be ripened into wine only through a series of years; it takes seedlings perhaps three quarters of a century to grow into trees fit for lumber. Our efforts to produce these things are thus not merely rendered more than proportionally efficient, they attain all their efficiency, they attain *any degree of efficiency whatever* only by the application of waiting-power.

There is, then, a very remarkable gain for productive efficiency in the use of waiting power. But this gain is one which every producer appreciates and which every producer is anxious to enjoy. Accordingly, to return to our main point, the opportunity to use more efficient methods which its possession gives us constitutes a third very powerful reason why there would naturally be a demand for waiting-power.

I have dwelt on various reasons why there would naturally be a demand for waiting-power. It is equally easy to show that there would naturally be a *limitation on the supply* of such waiting-power. In the first place, the amount which a community could set aside for the future would of necessity always be limited by the total income; we could not conceivably save more than the total product of our efforts. But, again, we could not by any possibility devote even this total product to providing for the future, for some of our present wants can go unsatisfied only at the cost of life. Further, it would be folly to sacrifice any present needs for the sake of future ones which were not of equal importance. Accordingly, a wise economy would never build up the stock of waiting-power for the satisfaction of future wants from that part of the current income which is needed to satisfy present wants of more, or even equal, importance.

The share of current income which can be devoted to the service of the future is further limited by the fact that future needs of a certain degree of intensity are *not really as important* as present needs of the same degree of intensity. For this there are two reasons. (1) Life itself is *uncertain;* the present we have, the future may for us never exist. A perfectly sensible and prudent person, therefore, will refuse to sacrifice a present want of a certain magnitude for a future one of the same magnitude. (2) Gratification of the present want is sometimes a condition necessarily precedent to the future want. Thus, the gratification of the present want may be essential to the continuance of *life,* or at least to the maintenance of that degree of *physical and mental health* which alone can fit us for the enjoyment of the future gratification.

But, even if present and future wants of the same magnitude were equally important, we should still have a check on our processes of saving. This consists in the same tendency we have cited as a cause for the rise of demand for waiting-power; namely, the almost universal *overestimate* of the importance of *present* wants, the almost universal *underestimate* of the importance of *future wants.* For the same reason that borrowers borrow, savers are disinclined to save anything to lend them. Not to gratify the want of today seems an unbearable hardship, while we contemplate without misgiving the deprivation of tomorrow. No doubt there are individuals to whom these remarks do not apply; some people accumulate much even with small incomes. But most of us spend freely or even carelessly; and, as a result, the supply of waiting-power accumulates less rapidly than it would if prudence in such matters were universal.

We have thus shown why it is natural that there should be, on the one hand, a demand for waiting-power, and, on the other hand, a limitation of the supply. This does not prove that there *must* be interest. To prove that, we should need to show that the conditions tending to build up a demand for waiting-power and those tending to limit the supply of

waiting-power are so potent that they necessarily make the demand at some rate of interest above zero greater than the supply at that rate. To prove anything of this kind would be from the nature of the case impossible. However, as was pointed out in an earlier paragraph, we are not called on to undertake such a task. Our business here is to *explain* interest. This does not require us to prove that interest must exist, but only to name *the conditions which, if fulfilled, will cause it to exist*—and this we have clearly done.

Illustrative Problems

1. "That capital is productive has often been questioned, but no one would deny that tools and other materials of production are useful; yet these two propositions mean exactly the same when correctly understood."

Show that those persons who object to calling capital productive would hardly be satisfied with the above proof.

2. Suppose that a fisherman could catch 21 fish a day without the aid of a net or boat or any other form of capital; that to make a net would cost him thirty days' labor; and that it would last only thirty days.

(a) What is the smallest number of fish which the net must enable him to catch each day in order to make it possible for us to credit any portion of the product to capital as capital?

(b) Supposing that the fisherman catches with the aid of the net 200 fish a day, what is the maximum productivity which could be credited to the capital as capital.

(c) Under what circumstances would that maximum tend to be so credited to capital?

(d) Supposing that only 1,000 fish were actually credited to the net as its product, how would you explain the fact?

(e) Can you imagine a condition of things under which no part of the catch would be credited to the net?

3. In order that we should impute productivity to capital, is it necessary that some part of the capital supplied should have a cost of abstinence or waiting?

4. Interest and the Significance-Disutility Principle

We argued in the preceding chapter that the economic share known as rent is with special ease brought into correspondence with the economic significance of the service rendered by land. We might almost as well have chosen *interest* as being peculiarly submissive to our principle. Almost everywhere the capital market is especially free from interference, is especially characterized by freedom of competition. If, then, the reasoning of Chapter XX be accepted,—the reasoning that under complete freedom of competition the price of each primary factor inevitably tends to be one which expresses the marginal significance of that factor—we may be quite certain that this is true of interest, the price of the use of capital.

There is, to be sure, probably no method of ascertaining directly and definitely the product-significance of a given unit of capital. Not a few writers believe such a method to exist, but I do not share their conviction. The economic significance of capital does not manifest itself in the same tangible way as does that of land.

Nevertheless, the *automatic process* which we depended on in Chapter XX to make the prices of primary factors express their marginal significance here operates freely and fully. On every side opportunities arise for the use of capital in order to substitute machinery for labor. *The advantage or disadvantage of such substitution turns finally on the rate of interest,* the price of the use of capital. Entrepreneurs compete or refuse to compete for the supplies of capital according as its price does, or does not permit a profit on its use. So, the owners of that capital openly compete against each other to insure its employment. If its price exceeds its marginal significance, some portion of the supply will soon cease to be employed. If its price is below its marginal significance, marginal and intramarginal users will have to bid up to shut out the extra-marginal users. Entrepreneurs may be individually and collectively in complete ignorance as to the real marginal significance of cap-

ital; but they have no difficulty ascertaining whether, at a given rate of interest, they can advantageously bid for more capital. *Paying no attention to anything other than their own immediate profit, their spontaneous action finally brings the rate of interest to a point where it expresses the advantage of the marginal opportunity for the use of capital.*

Is the rate of return to capital governed also by the disutility principle? Undoubtedly, as we have already argued more than once, the supplying of capital does necessitate some sacrifice or disutility. The question remains as to whether the marginal portion of this sacrifice is expressed by the rate of interest. Doubtless a negative answer is possible. The volume of capital accumulation is influenced by other conditions than the rate of interest. For example, some persons are in a position to save from the present income without appreciable sacrifice while, at the same time, they desire to provide a surplus for the future. Such persons would accumulate capital even if they were obliged to pay for the privilege. It is, therefore, conceivable that the amount of capital actually supplied to the market is not influenced to any great extent by a regard to the interest paid. If not strictly a fixed-output good, it would have its fluctuations of output determined through forces other than cost. The price of its use, therefore, would not have to conform in any degree to the sacrifice of saving it.

But, while this state of things is conceivable, it surely does not exist in fact. One type of accumulation, certainly, is motived by considerations of direct economic gain. I mean the getting together of a small sum to make a start in business or speculation. Doubtless we are not here dealing with pure interest—the *profit* expected is the more important item. Still the interest problem is also present, since the entrepreneur who puts his own capital into a business can not help performing the *waiting* function as well as the responsibility taking function. Now, every year a large amount of capital comes into existence in this way; and it is hard to believe that such capital

is wholly without influence in determining the rate of interest.

But, finally, the accumulating of that portion of capital which is devoted to earning interest only must be materially influenced by the immediate reward in the shape of interest. Surely there are not a few people in such a position that they naturally say: The rate of interest has fallen so low that it really is not worth my while to save any more; I would better enjoy the present. If so, their decision for or against further saving must change the volume of capital sufficiently to modify its price. Putting the matter in a still different way, can we seriously doubt that a fall in the rate of interest to zero would diminish the stream of new capital, or that a rise to ten per cent would increase that stream? If not, then we must say that the price of the use of capital must tend to express the marginal disutility of supplying it.

5. The Rate of Interest and the Quantity of Money

Besides the general theoretic questions respecting interest already considered, there are one or two of a more practical sort which claim our attention. A very persistent and troublesome popular fallacy makes the rate of interest to vary inversely as the quantity of money; whereas of course the more ultimate causes determining interest are found, not in the demand and supply conditions of mere money, but in those of *real capital,* such as engines, machines, and lumber. This fallacy seems to spring from a popular confusion of money and capital. It is not unnatural in view of the fact that capital is always marketed in the *immediate* form of money or the money equivalent, bank credit. As a matter of fact, we may, in the long run, safely take as our guide to the interest relations prevailing among real capital goods, the market for mere money capital. But this is only because in the long run those interest relations prevailing among the real capital goods find full expression in the market for money capital. In the actual determination of interest the quantity of money plays little part.

The argument is simple. What the borrower really wants is not money but goods,—engines, cars, rails, labor; and putting out more coin or more paper money will not make these goods cheaper to borrowers, nor will the withdrawal of money make them dearer. Or, if we suppose the rate of interest to be lowered at first by an increase of money, the natural working of things will soon reverse the movement. (1) The lower rate will lead to extensive borrowing and buying of goods. (2) This will raise the prices of goods; since they have not increased though the money has. (3) This will compel borrowers to borrow *more* money in order to get the same amount of goods. (4) This will raise the rate of interest again to its former place.* Summarizing, we have the following Principle:

Principle. *In the long run, the rate of interest must be determined in substantial independence of the quantity of money.*

But, while in the long run we can not expect to influence materially the rate of interest by altering the quantity of money in circulation, we can for brief periods accomplish this result. In fact governments and powerful banks at times consider it one of their functions to manipulate the money stock for the express purpose of raising or lowering the rate of discount. Thus the Bank of England has in several instances contracted the circulation of London in order to force on the market a higher rate. The possibility of bringing about such results in the way indicated rests upon the following facts.

Short-time loans largely connect themselves with the need for money, not to invest productively, but to *meet money obli-*

*In fact, it is generally held that, when the stock of money is increasing, the expected fall in its value—rise in prices—will cause lenders to hold back for a higher rate of interest in order to insure themselves against loss on the principal.

gations. The demand is thus emphatically for *money itself,* not something which money will buy. Hence the short-time rate adjusts itself to the marginal utility of *money* capital, without much regard to goods capital. Emphasis rests also on the fact that the short-time rate adjusts itself to the marginal *utility* of money capital with little regard to the *disutility* of saving. This is simply the old case of short-time normals being determined without respect to cost of production. During a series of years, the price of wheat tends to equal its marginal cost of production. But between two harvests its price tends to be one which expresses the marginal utility of the existing stock.

Principle. *For short periods (a few weeks or months), the rate of discount (interest) tends to equal that rate which expresses the marginal utility of the stock of money capital without much regard to the marginal utility of goods capital or the disutility of saving.*

Illustrative Problems

1. The law of 1900 for the better protection of the gold standard provided among other things that under certain circumstances treasury notes (greenbacks) which have been redeemed shall not be paid even in exchange for gold, but shall be hoarded, thus contracting the total currency. This was doubtless intended to protect the Treasury when a heavy gold export was in progress; and, whether or not, it will doubtless tend to check such a gold export. Argue for the correctness of the statement after the semi-colon.

2. At present the Imperial Bank of Germany has the unconditional right to issue only 450 millions of uncovered (not backed by an equal amount of gold) notes; but, by paying a tax of 5 per cent on any excess over this amount, it may expand the issue indefinitely. It is believed that this power can be used, and is used, to keep the rate of discount much more uniform than it would naturally be. Show that we can reasonably look for such a result.

6. The Rate of Interest and Risk

At any one time the rate of interest on capital used for the same general purpose differs greatly in different places, say Ann Arbor and Spokane; and even in the same place at the same time it perhaps differs widely when the capital is put to different uses. The chief explanation of these differences is doubtless inequality in the matter of risk. The excess over, say, four per cent. in a given time and place may be conceived as an insurance premium, necessary to cover losses from bad debtors, or perhaps as a payment necessary to overcome the natural indisposition of the lender to take chances. If we understand by "gross interest" the amount actually paid and by "pure interest" the rate to cover the simple use of capital, we may lay down the following principle, which though obvious and familiar, is unfortunately often overlooked.

Principle. *The amount by which gross interest in any particular case exceeds pure interest tends to vary roughly as the risk involved.*

CHAPTER XXX

WAGES

1. Wages and the Significance-Disutility Principle

Of the general domination of the significance-disutility principle in the matter of wages, we need not speak in this place. In establishing the principle for the prices of primary factors, in chapter XX, the example of a primary factor which we used throughout was *wages*. Since the principle there established and the one now under discussion are essentially the same, anything which we should properly say about wages in the present connection may be found already set down in those earlier pages. It is only necessary, therefore, to introduce a few minor points which might seem to modify the principle.

To the effective working of the marginal significance half, there are two or three obstacles, especially if we have in mind the significance of the *natural* output of each type of labor service. In the first place, there is more or less restraint of competition on the part of those who supply labor: in a good many occupations, something like a labor monopoly exists. Restriction is secured both by *limiting the number of laborers* in a given field and by *limiting* through various devices the *natural output* of those persons who do get into the field. As a result, the share of these persons tends to exceed that which would express the marginal significance of the *natural* output of their type of service. In short, society has to pay for many of the higher services more than would be expected in view of the amount of those services which would naturally be forthcoming. Laborers who supply the services get more than they earn, using the latter term in its ordinary sense.

We need not, however, take this concession too seriously. In this age of publicity, free education, and universal initiative, few combinations could, in the long run, be successful in shutting out the competition of the really fit. Further, the policy of the trades unions is to some extent—though certainly not a large one—offset by an analogous procedure on the part of employers. Adam Smith, the so-called father of Political Economy, said that there always exists a universal, though tacit, combination among employers to keep wages down. This was probably nearer the truth in his day (1776) than now. The vastly greater extent of the market within which labor is bought and sold now makes tacit combination almost impossible; and formal combination for this end seems not to have been carried far. Still there is probably enough to offset in some measure the monopolistic combinations of labor. In short, it is probably safe to assume that the wages of even the higher forms of manual labor are not priced at a point materially above their natural marginal significance.

Another obstacle to the complete domination of wages by the Significance principle is *the lack of mobility among laborers*. We have all noted that the mere *competition of sellers* will not secure the advantage of buyers unless the latter are themselves reasonably alert. A shop may advertise ever so conspicuously the fact that it sells the same wares at prices below those of its rivals; but, unless buyers note the fact and act accordingly, they will not benefit from the favorable competition. But the converse proposition is also true. The mere competition of *buyers* will not insure good prices to *sellers* unless the latter are alert enough to become cognizant of the fact, and are in a position to profit by their knowledge. Ignorance, lack of means, inertia—by all of which laboring men are too frequently hampered,—may combine to neutralize more or less completely the advantage which they might derive from the free competition of employers.

Another reason often given for expecting wages to be different from what they would need to be to express the mar-

ginal significance of labor, is that wages in many fields are fixed by *custom*. Thus we have been wont for years to pay housemaids $3 to $4 per week in one social class, $5 to $6 in another, $7 to $10 in another. Similarly, the wages of common labor range usually from $1 to $1.50 per day. Now, without doubt, custom has some direct influence on the rate of wages; but that influence is, in the opinion of the writer, much exaggerated. In the first place, the facts do not display the degree of uniformity claimed. Within a few years a very marked change in the alleged customary standard has taken place. The amount which we commonly assume will have to be paid for one or another type of labor has changed three or four times in the memory of living men. Again, the uniformity claimed is not exact enough to show the effect of custom. Custom is nothing if not fairly inelastic. A custom which permitted men to wear at a formal dinner anything from a frock coat to a doctor's gown would not be called a custom at all. So, a custom which makes wages for one type of service range from $3 to $4 a week can hardly be called a custom.

Again, if wages were so much under the influence of custom, we should see but little change in their rate due to inflation of the currency, rise in the value of the standard, immigration, booms in business, and other modifying conditions. But statistical investigations have shown that wages, though moving somewhat slowly, do actually move in response to changed conditions. Finally, the considerations noted a few paragraphs back, publicity, general education and universal initiative, create a strong presumption against the belief that in our day mere custom can exert a marked influence in wage-determination.

We have, finally, to remark a tendency rather pronounced with some present-day writers to put forward the influence of *bargaining* in the determining of wages as a reason why wages can not, and do not, express marginal significance. These writers usually set out with the idea that the sole downward limit of wages is what the laborer will take, much

as the upper limit is what the employer can afford to pay. They thus overlook altogether the *part played by employers* in fixing another possible lower limit to wages, and hence insure that the supposed lower limit shall be a very low one indeed, one leaving ample room for bargaining. But this analysis is certainly unsound. There *is* another lower limit* besides what the laborer will take, namely, the significance of labor to the first extra-marginal employer; and this limit is often much *higher than the employee's minimum,* so that the range of bargaining is much narrowed. Further, a good deal could be said for the contention that the laborer's minimum which really appears most of the time is the wage he believes he can get elsewhere; it is not a true laborer's minimum but rather a minimum set by the extra-marginal employer.

Generally speaking, then, bargaining does not act upon wages with the force recently attributed to it, and does not displace in any marked degree the principle of marginal significance. In so far as our principle is displaced by bargaining, this is probably true, not because bargaining as such can override the natural limits set by the marginal and first extra-marginal significances, but because the bargaining is, on one side, *collective, monopolistic.* The individual employer has to deal, not with each workman, nor even with his workmen as a unit, but with the trade; and the trade as a totality has restricted competition in one way and another so that bargaining can move wages outside the limits set by the marginal and extra-marginal significances of the *natural* output. But this was already provided for in admitting that monopolistic labor could set limits other than those which would be established by the marginal significance of the natural output.

*Oddly enough, the analysis is usually inconsistent at this point; for it does *not* ignore the part played by employees in fixing an upper limit which may be under that fixed by employers.

2. Wages and the Standard of Living

In an earlier connection, it was held that, under a regime of free labor, the supply of laborers is not, to any great extent, directly regulated by economic motives. We should not, however, assume a total lack of connection between the size of the laboring population and economic conditions. While there is, probably, very little direct regulation of the size of laboring men's families, yet through both conscious and unconscious processes, population tends so to adjust itself that the typical rate of wages is compelled to coincide roughly with the workingman's conception of *what is essential to a decent living*. This, of course, means merely that the result named is effected in the long run. Laborers cannot raise their wages here and now merely by deciding that more is needed to insure a decent living. At any moment their numbers are fixed; and comparatively few will take to the road for the difference between $1.50 a day and $1.40 a day. Their wages, therefore, must for the moment roughly correspond to the marginal significance of their labor. But a given standard of living insisted upon through a series of years will express itself in diminished population; this, in the end, will raise the marginal significance of labor; which, finally, will raise wages to the required height.

A very practical application of the above principle is seen in the fact that the rate of wages can be altered by changing the ideals of the wage earners. Adverse conditions may permanently lower actual wages, because those adverse conditions may hold wages below the old standard of living until the working classes have insensibly come to accept a new inferior standard. On the other hand, favorable circumstances may work the opposite result. In short, a new level of wages brought about, and for some time maintained by temporary causes, tends to persist.

The points brought out above may be formulated in the following Principle and Corollary.

Principle. *Under the natural working of economic and social forces, the long-run rate of wages tends to be that rate which will enable the working classes to maintain that standard of living which, in the particular time and place, is looked on as necessary to a decent living.*

Corollary. *In the long run the rate of wages can be altered by changing the ideals of the working classes as to what is essential to a decent living.*

Illustrative Problems

1. What bearing does our principle have on the question whether Chinese immigration should, or should not, be discouraged?

2. "No remedies for low wages have the smallest chance of being efficacious, which do not operate on and through the minds and habits of the people." Mill.

Argue for the truth of this statement. (It probably needs qualification; but leave that for some other occasion.)

3. Argue that, though the restrictive policy of the trades unions temporarily injures lower classes of workingmen, in the long run it is likely to raise wages generally.

3. The Theory of Employment

One aspect of the wages problem which has the greatest practical importance for every one is *Employment.* The most fundamental and inclusive law indirectly governing employment has already been expounded, under the title of Say's Law. Accordingly, we need do no more in the present connection than briefly restate the principle and derive a few significant corollaries.

a. Employment and the Demand for Products

Immediately, of course, labor is bought by entrepreneurs; and so, in a sense, the amount of employment depends on the demand of entrepreneurs. But entrepreneurs do not want

labor save as they intend to produce goods with it and they are not going to produce goods save as the public demand them. Less immediately, therefore, the amount of employment is determined by the public's demand for goods. But as we learned from Say's Law, the public's demand for goods is, in the last analysis, dependent on their ouput of goods. Only by producing goods can we create a demand for the goods of other entrepreneurs and, therefore, only by this process can we create a demand for the labor of the workmen who assist those other entrepreneurs. These facts may be formulated as follows:

Principle. *In so far as employment depends on the demand for products, it changes with, and only with, the output of products for the market.*

Corollary 1. *The destruction of objects of wealth which are bound to be replaced does not increase employment.*

A second set of facts with regard to which people often hold erroneous ideas will appear in the following:

Corollary 2. *Private expenditure for extravagances, as contrasted with other forms of expenditure or even with hoarding, does not increase employment.*

Ten thousand dollars spent in buying bread or cotton cloth contributes just as much to make a demand for labor as $10,000 spent in buying fireworks or champagne. Ten thousand dollars spent in buying 500 ounces of gold coin to bury in the ground contributes to the demand for labor just as much as $10,000 spent on gold for plate. It is true, of course, that some forms of expenditure give more employment than others, since labor, as compared with capital and land, is used more extensively in some forms of production than in others. But economists have with practical unanimity held that expenditures for extravagances contribute less to create employment than those for capital goods.

The effect of hoarding on the labor situation is chiefly of theoretic interest. Temporary hoarding may diminish the demand for labor, since without causing an increased demand for gold, it does diminish the demand for other things. But true hoarding is in our day a negligible phenomenon. The rich man nearly always spends his money (or lends it to someone who spends it) whether for consumption goods or for those devoted to production.

Corollary 3. *Governmental extravagance does not increase employment.*

The truth of this corollary should naturally be inferred from the one above. Of course governmental extravagance may temporarily increase employment in a period of industrial stagnation when hoarding, as suggested in the preceding paragraph, has tended to diminish it. But in general we may say that the money which the government spends has to be taken from tax-payers; and if left with the tax-payers it would be spent by them personally to buy goods, and so make as much employment as when spent by the government.

Corollary 4. *Producing for oneself, when it is done without decreasing one's output for the market, does not diminish employment.*

For example, a person who produces through his property or his efforts or both, say, $1,000 worth of products each year does not diminish employment by putting in some spare time building himself a boat. Assuming that his outside production is not changed, his demand for goods on the market is the same as before, and therefore creates the same employment.

Corollary 5. *Broadly speaking, an increase in the supply of labor services creates opportunities for employment as well as absorbing them, though not usually in quite the same proportion.*

This proposition is not so evident as the preceding; nor can it be accepted without larger qualifications. But it is still substantially true. If the whole producing group creates a demand for labor by producing, it follows that the labor part of the producing group creates a demand for labor by its producing. Doubtless it must be admitted that *not all* the demand created by labor's production will eventuate in a demand for other labor; since labor's demand for goods will be a demand for all the factors necessary to produce those goods, land and capital services, as well as labor services. But with the majority of commodities, the contribution of labor, direct or indirect is by all odds the most important element.

There is no intention here of asserting that the process described will have no adverse effect. Without doubt it will tend to cause some decline in the rate of wages, under the working of the principle of diminishing marginal significance. But this result is not to be confused with the question of employment.

b. Employment as Dependent on the Supply of Land and Capital

In carrying forward the preceding discussion, it was assumed that, in demanding goods, the public create an almost equal demand for labor, and, so create an almost equal amount of employment. But this presents only a partial view of the matter, since production requires other factors besides labor. A demand for goods cannot constitute a demand for the labor needed to produce those goods, unless there are land and capital available to complete the combination.*

* It is, of course, equally true that a demand for goods does not constitute a demand for the land necessary to produce those goods, unless there are available labor and capital to complete the combination. So a similar affirmation may be made with respect to capital. In short, in a sense each kind of productive goods constitutes a demand for the others.

There is also another reason for affirming the special dependence of labor for employment on capital. Besides supplying the produced materials and instruments of production, capital commonly performs another function, namely, *advancing the wages of current labor*. Doubtless in some cases wages are not advanced at all and in others they appear not to be advanced, since the workman is paid only at the end of the week or month. But, from the standpoint of the entrepreneur they usually *are* advanced, in the sense that a large part of the wages paid during any particular week or month are paid for labor which is devoted to producing *incomplete* goods,—goods which will give money returns only at a later period. Because of this fact production requires a *waiting* additional to that involved in supplying the necessary materials and instruments. In short, production requires somewhere in the community a fund of circulating capital sufficient to supply the current wants of producers. As a large part of its function will be to make advances to laborers, it may well be called the wage fund.

Without question the classical economists for a time pushed too far the doctrine that employment and wages are dependent on capital, developing a special theory of wages, known as the wage-fund theory. According to this doctrine in its cruder form, there is at any moment a fairly determinate sum of capital devoted to the purchase of labor services, so that, unless the number of workmen changes, no change in the average of wages can be made,—an increase to one class being offset by a corresponding decrease to some other. In practical application, this theory was made to prove the futility of strikes and the doctrine probably did not deserve much consideration. Still, its fundamental truth cannot be denied. Employment is more or less dependent on a special section of capital, reasonably enough called the wage-fund.

As a rough summary of this discussion, we may lay down the following:

Principle. *Broadly speaking, satisfactory opportunities for employment vary with the abundance of natural resources and capital.*

c. The Limits of Possible Employment

In the preceding discussion we affirmed the reciprocal dependence of land, capital, and labor for opportunity. Rigidly interpreted, this doctrine would suggest that there is a definite limit to the opportunities of each of these factors,—or, for our special purpose, to those of labor. Given a certain outfit of natural resources and capital, there will be opportunity to utilize a definite amount of labor and no more. Such an interpretation would nicely support the popular notion that there are just so many jobs, no more and no less, so that giving a job to one person necessarily takes one from somebody else. To the trained economist, this view seems quite unwarranted. But possibly our present discussion may have given it some color of sense. Does not the affirmation that land and capital, as well as labor, are essential to production support the contention that labor opportunities are strictly limited?

In answering this, we have to remind ourselves that all industry is, during some period, in the condition of Returns Increasable at Diminishing Rate. That is, even if the available quantities of land and capital are constant, yet increasing the amount of labor *will increase the total return* to the combination *though not proportionately*. Since the increase in return is the contribution in the product which will be credited to the additional labor, and, as such contributions will determine the price of labor, it follows that the new conditions will lower wages. Still, this will not alter the fact that the new labor has found employment. Accordingly, we may say that, *under ordinary conditions, no one need lack employment if he is content to accept that wage which expresses the new marginal productivity of labor.*

As a basis for the foregoing argument, it was said that, *during some period,* industry is in the condition of returns *increasable* at diminishing rate. But this basis does not always hold, and so the principle laid down calls for qualification. It is possible that industry should reach a stage where its returns are *substantially fixed,* where they have reached their maximum:—even if the efforts of another laborer could increase the output somewhat, still the additional amount would be so small that even with the extremest conceivable economy it would not furnish subsistence. Employment is so far dependent on land and capital, and the possibilities of industry are so limited that *a time is always liable to come when opportunities for employment cannot experience any measurable increase,* when no more laborers can be utilized.

Further, in actual life the practical, effective limit to employment is usually reached somewhat short of the combination of maximum returns. The decline in the marginal productivity of labor does not go on till men *could* live on no less. Rather it stops where they *will* live on no less. In earlier times conquering migration and, more recently, peaceful emigration have brought relief; and in our own day improvements in methods of production have repeatedly pushed far into the distance the point of maximum returns.

d. Employment as Affected by the Rivalry of Capital

Capitalistic methods are generally *labor-saving* methods, hence methods which in themselves decrease the need for labor as compared with the need for capital. Capital therefore appears in some sense the rival or competitor of labor. This fact has naturally given rise to much controversy as to whether the introduction of improved methods does not diminish the total demand for labor. (1) All are agreed that *immediately* certain classes of laborers suffer by being thrown out of employment and compelled to make new adjustments.

(2) Experience shows that, in any given industry taken as a whole, there is little, if any, decrease in employment; because the lowered price due to lowered cost so stimulates demand that the old workers are needed to meet that demand even under the new and more efficient methods. (3) The lowered price due to lowered cost, if it does not create new demand, releases buying power saved because of the lower price, which will be spent on new products, save on the almost inconceivable hypothesis that goods have become so abundant and their marginal utility so low that people no longer *want* more things. But supplying these new products will furnish employment opportunities for the labor displaced in the old industries.

These last remarks would not show that the introduction of improvements has no tendency to *lower wages* by making labor relatively more abundant and so lowering its marginal utility. We are here concerned only with *opportunities* for employment at some wage or other.

e. Employment and Foreign Trade

One of the most obstinate of popular fallacies is the notion that the employment opportunities of the people of a community are diminished by carrying on trade with other communities, that buying outside takes away jobs from one's own people. Against this notion economists have always protested. The principle given below is a mere corollary from the Principle of Reciprocity discussed in Chapter XIII. Foreign trade is necessarily reciprocal. If we are buying abroad, we must be selling abroad,—must be delivering the foreigner some form of wealth, either goods or money. But, in producing the commodity or commodities with which we pay the foreigner for our purchases, we create opportunities for employment just as truly as we should by producing the imported goods at home. There are some valid arguments for artificially

developing certain industries within our own borders; but this "more employment" argument is not one of them.

Principle. *Broadly speaking, changes in the extent to which goods are bought abroad has no effect on the amount of employment.**

*Remember that in this, as in any principle of science, all conditions other that the one under consideration are assumed to be unchanged. For example, we must not suppose that, when we stop buying certain things abroad, there is an inflow of capital from abroad. Such a procedure would be introducing a change in conditions *other* than a mere decline of foreign buying.

CHAPTER XXXI

PROFITS

1. The Real Nature of Profits

In the business world, profits though usually confused with interest, were early recognized as a special share in distribution. This recognition was present also in the earlier theoretic discussions. The Medieval churchmen, who sweepingly condemned interest—usury as they called it, seem to have considered profits legitimate,—meaning by profits a share going to the capitalist who undertook the risks of enterprise. But, after economics had come to have some scientific development, profits largely failed, especially among the English and American writers, to receive any distinct and separate treatment.

Even when in the middle of the last century, the office of the entrepreneur began to get attention from English economists, there was a singular failure to recognize his true function. He was represented as primarily the man who *managed* productive operations. And this happened in countries in which industry was rapidly passing into the hands of entrepreneurs who *hired men to manage their business* rather than doing it themselves. This doctrine still shows a most astounding tenacity in the texts, though it is manifestly quite untenable. The peculiar function of the entrepreneur must surely be found in *something which he only can do,* which he can not hire someone else to do. For anything coming under the latter category is plainly labor. Now, the only functions which seem necessarily to be left with the entrepreneur, are the assuming of *final responsibility* and performing *certain types of management which can not be delegated,* for example, appointing those who shall direct the business.

Profits, as the term is frequently used by the general public, include the *whole* net return to the responsible owner of a

business after money outlay has been deducted from money receipts. This whole return, which we might call Gross Profits, usually includes at least three elements, (1) wages of some sort, principally for management, (2) interest on capital invested, and (3) a remuneration for *taking the responsibility* of production, and *making certain final decisions which necessarily fall to the owner.*

The first element has come to be eliminated from profits even in the popular sense of the term because of the great extension of the corporate form of business in which the work of management is turned over to hired officials. The second element, interest, is still commonly included. That is, stockholders in a concern paying seven per cent. dividends would think of the business as yielding seven per cent. profit, rather than four per cent. interest plus three per cent. profit. In this sense, profits is contrasted with interest in being the return to the capitalist who bears the *whole* burden of ownership, *waiting plus responsibility-taking;* while interest is the return to the capitalist who assumes only one part of the burden, waiting. In strict economic analysis, however, profits ought to be limited to the third element, the taking of responsibility and making final decisions. From this point of view, profits in the illustration above would be only three per cent., the difference between what the capital would have received if *lent* to the company and what it actually did receive as *invested in* the business. Profits in this sense, we will call *Pure Profits* or Profits Proper.

Pure Profits, then, are the remuneration for responsibility taking, especially for the risk element in responsibility-taking. They include an infinitesmal amount of wages, in that the owner must make certain final decisions—though in practice this tends to become negligible—and perhaps other disutilities or sacrifices. But the chief element in the case is the bearing of economic risk.

That risk for the bearing of which profits are paid must not be confused with the *regularly recurring, calculable* losses

of a business. Such losses simply increase the outlay for labor and capital goods. The remuneration received by the entrepreneur because of such losses would never be thought of as profits, but only as a fund to replace costs. The risk for which profits are paid is the risk of *losses which cannot be recouped in the experience of the individual entrepreneur,*—risks of total failure, or some loss almost as great. Compare the breakage of bottles in the brewery business with the chance that temperance legislation will destroy the business. The former is covered by greater outlay. The latter is a not-to-be-compensated loss. To induce men to assume the risk of such a loss, they must be paid something, not of course enough to cover the loss if the risk should become a certainty, but *enough to move their wills to face the possibility of loss.* It is thus evident that profits must not be conceived as a contribution to an insurance fund from which losses are covered. There is no such fund; the losses are not covered.

Under Socialism, the sort of risk now remunerated by profits would in the main be covered by an insurance fund; since the state, having a complete monopoly of production, would pool in its own hands all risks, and, as well, all chances of occasional gain. The risk cost of production, therefore, except perhaps in the case of long time enterprises undertaken for future generations, would become simply *more capital and labor cost,* instead of being as now, the price of the *psychological disutility of bearing risks.* It is probable that the state would charge each commodity with the average cost of the whole output of that commodity, including successful and unsuccessful branches of the industry involved. Profits, as an element of cost, would not therefore be entirely eliminated under socialism, but would appear in another guise.

2. Do Profits Tend to Disappear

A noteworthy fact in recent economic discussion is a disposition to hold that profits—pure profits—tend to disappear. The argument for this contention moves along two

general lines. (a) It is affirmed that pure profits, assuming them to be paid for risk-taking, will necessarily disappear with the elimination of risk from industrial affairs; and such elimination is steadily proceeding through the increase of knowledge, forethought, and invention. (b) Secondly, it is claimed that the disutilities correlated to profits are disutilities which plenty of men, especially in America, are quite willing to assume without reference to an economic reward. The desire for power, the craving for better social standing, and the gambling spirit which eagerly improves the opportunity to take chances,—all these unite to make men willing to undertake the responsibilities of production, even though they expect to get nothing more than ordinary interest on their capital and ordinary wages for their labor.

In reply to the first of these arguments, it seems sufficient to declare that the complete disappearance of risk, chance, uncertainty from industrial affairs, if not quite impossible, is certainly so remote that it cannot properly be made the basis for any affirmations with respect to the present order. Some centuries hence we may have become able to predict the weather for a year in advance with absolute precision; but we shall still have to reckon with the uncertainties due to human folly and caprice. The second argument is less easy to answer, yet will not, I think, carry conviction to most persons. The first two motives named, the desire for power and the desire for social position, affect only a small minority of our entrepreneur class, namely, the small individual or partnership entrepreneurs, who combine in themselves the functions of capitalist, manager, and entrepreneur. For most of our entrepreneurs, belonging to that class merely by virtue of being stockholders in some industry organized as a corporation, enjoy neither power nor prestige. Under the corporate organization of industry, salaried officials are the ones who wield power and the social position of capitalists (bond holders) is surely as good as that of stockholders, assuming their investments to be equal. But, if there is any large sec-

tion of the entrepreneur class with whom these non-economic motives would not suffice,—who would insist on a greater economic return for taking responsibility than for simply lending their capital—then, profits would surely have to be paid.

The third consideration,—the gambler's desire to take risks—contains the old confusion of ideas which has already been commented on more than once. It is undoubtedly true that men are so ready to take risks, when a possible prize is in sight, that they do not *as a whole class* have to be remunerated for taking that risk. If all the copper producers of the world spend 500 million dollars worth of labor and capital getting out the product, it is not necessary that the product should be worth 500 millions plus something for the risks taken. On the contrary, that product will probably be worth less than its labor and capital cost, say 400 millions. But all this is beside the point. The real issue concerns, not the whole *class* of entrepreneurs interested, but only those upon whose conduct depends the output actually supplied, the successful entrepreneurs. Do these persons have to get profits? Surely they do, else there would not be this gambler's eagerness to assume the risks of the business. The proper test for determining whether profits as a remuneration for risk-taking, really exist, is this: Does society have to pay a higher price for a given commodity or service than it would have to pay if risk were eliminated? Surely there can be but one answer to that question, the affirmative one.

3. Profits as Affected by Changes in the Value of Money

In an earlier discussion, it was shown that the value of money itself may change, and, so, general changes in prices may take place without reference to the conditions ordinarily governing the value of each commodity. Thus, under the paper money standard of Civil War times, there was a general

rise of prices, or, in other words, a fall in money, in the United States. So, for many years following 1873 there was a general, though gradual, fall in prices,—a rise in money,—affecting most or all of the Western nations. Much more rapid ups and downs mark the periods immediately preceding or following commercial crises or panics.

There has naturally been much debate as to how far such movements influence all shares in distribution and particularly profits. At first thought one is inclined to say that of course such changes influence profits. If a merchant has paid $100,000 for a stock of goods and because of a universal and simultaneous fall in prices, their value declines to $60,000, how can anyone deny that the merchant is losing $40,000? This sounds plausible, but is in fact an undoubted fallacy. A universal and simultaneous fall in prices of 40 per cent. raises the buying power of $60,000 till it is just as great as was the value of $100,000. Assuming, then, that *no other element was involved,* the merchant in question would neither gain nor lose as a result of the general fall in prices. That fall in prices does not of itself mean a fall in profits.

The above affirmation was qualified by the assumption that no other element was involved. But in actual life this condition is seldom fulfilled. In the first place, the merchant is usually carrying on his business in greater or smaller measure with *borrowed capital.* But the sum which he has promised to pay when borrowing does not change because the value of money has changed. If he is using $20,000 of borrowed capital, he will have to pay back, not three-fifths of that sum—$12,000—but the whole $20,000. His debt has not shrunk though the value of his goods has. To pay his debt he will need so much of his goods as are *now* worth $20,000, which means so much of those goods as *were* worth five-thirds of $20,000, or $33,000. Hence he has lost the difference between $20,000 and $33,000, or $13,000. It follows that, in so far as the dealer works upon borrowed capital, a change in the value of money causes an inverse change in his profits:

if the value of money rises he loses proportionately, and if that value falls he gains proportionately.

Another element in this situation which compels a qualification of our original statement is that *general price movements do not take place at an equal rate* all along the line. Some goods rise or fall more rapidly and more promptly than others. In particular, wages do not change as rapidly as general goods. It follows that a rise in prices,—a fall in the value of money—is likely to redound to the advantage of the dealer, in that he gets a larger return from the sale of his goods while his expenses for labor have not proportionately increased. And of course a reversal of the situation, that is, a general fall in prices, an increase in the value of money, works to the disadvantage of the dealer for precisely opposite reasons.

4. Profits and the Significance-Disutility Principle

The attempt to establish the validity of our Significance-Disutility principle for each of the economic shares meets the greatest difficulty in the case of *profits*. As already explained, we mean by profits proper the return going to the man who takes the responsibility of ownership. We usually distinguish several different sorts, the nature of which is perhaps sufficiently indicated by their names. The most important are: Ordinary, Enterprise, Speculative, Monopoly, and Accidental profits.

One has no difficulty showing that profits *are in some sense or degree correlated to a service rendered*, a significance in economic relations belonging to the part performed by the receiver of the profits. Further, profits are undoubtedly *in some sense or degree proportioned to the significance or magnitude of the service rendered*. Thus, all must admit that those persons who initiate a commercially dubious, but socially important, enterprise perform a greater service than those who carry on the same in later years when success is assured; and, undoubtedly, the profits must commonly be

larger for the former persons than for the latter. But, admitting a rough correspondence between profits and the service rendered, it does not seem possible to affirm quite the same degree of correspondence as in the case of wages, interest and rent.

Where profits are *accidental,* the correspondence between services rendered and reward received is of course slight. Such profits do *not* tend to express the marginal significance of the receiver's contribution.

Monopoly profits doubtless correspond rather closely to the marginal significance of the supply of service *actually* rendered, but not to the marginal significance of the supply of service *which would naturally be rendered.* The monopolist, by limiting the output of his product raises its marginal utility, and so its price, above the marginal utility which the product would naturally have. In doing this, he obviously raises his own profits above the amount which would express the marginal utility of his services, were no limitations set on their output.

One qualification must, however, be added. The monopoly which temporarily exists may have been *anticipated,* and may have been one of the necessary conditions which induced capitalists to undertake the industry in question. Hence we may say that the monopolistic output is after all the *natural* one and so that monopoly profits comes fully under the service-value principle. Cases of this sort are supplied by the legal monopoly of patents, copyrights and franchises, and by the quasi-monopoly of new enterprises. Here the extra profit does not correspond merely to the higher valuation by supra-marginal buyers of the service rendered, but also to the additional service. For, surely, there is an additional service when men undertake to try out the feasibility of a new enterprise,—giving the public an opportunity to see the real utility of the service or commodity which the enterprise supplies.

Yet in spite of this qualification of our first statement, economists are not generally disposed to affirm the service-value principle for monopoly. The presence of monopoly at any point more or less seriously interferes with the realization of the principle. Hence, assuming for the moment that the principle is a good one in an economic order, then monopoly, if necessary or permitted, ought to be regulated or controlled in the public interest. This point, however, will receive fuller treatment later on.

The argument for Enterprise Profits has been more or less anticipated in the preceding paragraphs. Such profits somewhat resemble *prizes*. Many persons get nothing; a few get large rewards. Under these conditions, we can scarcely expect profits to express with great precision the contribution of the profit-receiver. Yet we should not, on the other hand, imagine that the two are entirely divorced. Opportunities for exploiting novel enterprises are constantly arising; competition for such opportunities is kept fairly brisk; the goods produced must command prices expressing their marginal utility; the marginal contributions of the other factors are at the same time being more or less fully determined in other fields; and it seems not unreasonable to assume that the residuum of product—which constitutes profits—is properly credited to the entrepreneur as his contribution.

That *Ordinary Profits,* if they exist at all, tend to express the marginal significance of the entrepreneur's contribution, seems to need no further discussion. Here the elements of change and uncertainty are reduced to a minimum; so that the economic processes which tend automatically to secure each factor a share representing its contribution to the joint product, meet little hindrance.

We have seen that the Significance half of our principle does not very clearly dominate profits. How about the Disutility part? It seems plain that disutility would have little influence on Accidental or Monopoly profits. Ordinary profits, however, it would seem, must express with fair precision

the marginal disutility of supplying the entrepreneur service. First, the demand of the public must insure for a product a price high enough to cover the disutility undergone by the entrepreneur; since otherwise production will cease, supply will fall off, and so price will rise. Second, the competition of entrepreneurs will keep price from going higher than the above point; since their numbers can be recruited at all times from those capitalists who merely furnish waiting power, who *lend* their capital rather than invest it.

In the case of Enterprise profits, also, correspondence between the disutility and its reward seems necessary from the same reasoning, though here the correspondence is less precise. The objection is sometimes raised that there is *too much chance* in these cases to insure any particular result. Thus the price of a product may fail to cover, not only the peculiar disutility of the enterpreneur, but even the ordinary outlay for material, wages, and capital; while on the other hand, it may cover all that outlay and give a surplus large enough to insure almost any conceivable risk several times over. This reasoning quite fails to recognize the real nature of the responsibility-taking disutility. It consists not of a chance of loss to be covered by insurance, but of a chance of loss not to be covered at all. To induce men to incur that disutility, a prize or bonus, of larger or smaller magnitude, must be attainable in the event of success. The size of that bonus is roughly proportioned to the risk, though the unit of variation is very different for different races; and, having been fixed, it must be covered in the price of the product.

CHAPTER XXXII

INCOMES AND FORCES OUTSIDE THE GENERAL DISTRIBUTIVE PRINCIPLE

We have thus far dealt with incomes as determined solely by the Significance-Disutility Principle. But other forces are of course acting upon incomes in a way to alter appreciably the facts heretofore set forth. Incomes are affected by non-economic forces; they are affected by the distribution of property; they are affected—or our attitude toward them is affected—in a high degree by our appreciation of the distinction between *apparent* and *real* income. Let us glance briefly at these points in order.

1. Incomes as Affected by Non-Economic Forces

We have seen that incomes generally, and the inequalities of incomes, are determined by the laws of value or price, that is, by strictly economic forces. But no one doubts the constant operation of other forces, some of which work to diminish the inequality natural to our freely competitive order, others to increase it. Among the non-economic forces tending to diminish inequality, we have all sorts of employers' philanthropies, profit-sharing, co-operation, a vast system of charities, and large endowments to meet all sorts of needs. Over against these, intensifying the inequalities natural to the present order, we have a great array of powerful forces, predatory competition, favoritism, breach of trust, nepotism, stock-jobbing, frauds of all kinds, and so on. But, though admittedly influential, these forces do not properly fall within the limits of our present study. Rather, a purely scientific analysis of economic principles assumes their complete exclusion. The extent to which they modify our principles in actual life may reasonably enough be left to the discussions of ethics or sociology.

2. The Distribution of Property

Three of the four economic incomes, profits, interest, and rent, are derived from property. It follows that back of the determination of incomes, immediately considered, must lie the distribution of property. We understand the theory of these incomes only in part, if we stop with the study of them at the point where they are given off by land and capital. We ought to go deeper and *explain the distribution of ownership in land and capital.* It will be impossible to do this at all fully in the present course, but a few comments will help us to get a fairly adequate view of the general situation.

a. First, in so far as possessions are derived from one or more of the four regular incomes, *large properties can be built up only through saving.* In this respect there has been no change from primitive times. Thrift is still the essential condition of acquiring great possessions. With fortunes well started the exercise of thrift does not of course involve great privation, it does this only when accumulation is at its beginning. But, whether causing privation or not, thrift, in the sense of *keeping within one's income,* must always be be essential. Wanton extravagance can never consist with the building of great fortunes.

It should perhaps be remarked in passing, though we cannot linger to discuss it, that in our day one particular kind of income—profits—rather than the others, has, when economically used, been especially effective in the creation of great fortunes. This is using profits quite broadly to include all gains which go to the people who assume the risks of ownership: (a) profits derived from the exploitation of stores of natural wealth, (b) profits from the exploitation of new inventions, (c) profits from monopolies, partial or complete, (d) profits from unearned increments, increases in values due to changes for which the owners of the properties in question are not responsible, and (e) profits from industrial reorganization. The great size to which some of these kinds of profits are frequently swollen will be sufficient explanation

of why, with thrifty use, they should originate large property holdings.

b. In the second place, the *maintenance* of great fortunes must always depend in considerable measure on the practice of *thrift*. This does not mean serious privation of any sort, but only a firm adjustment of expenditure to income. Reckless extravagance can dissipate the greatest of fortunes. This fact has usually been accounted a sufficient safeguard against the dangerous concentration of wealth made possible through inheritance. The extravagance of heirs, it is argued, can always be depended upon to dissipate extraordinary wealth in one or two generations. But this tendency has probably been a great deal overestimated. It would not be difficult to point out families which, by the exercise of reasonable thrift, have retained wealth for several generations and bid fair to continue the experience.

c. *Inheritance* always has played, and still plays, a very great part in determining the distribution of possessions. Obviously its significance is chiefly dependent on the particular laws and customs which obtain in any time and place. (a) In earlier times, *entail* was used to maintain an unequal distribution of property; law, or custom as binding as law, prohibited the breaking up of estates by alienation through sale or gift. (b) Where entail is no longer permitted, *settlement* may accomplish something like the same result; though recent legislation has attempted to provide for the practical nullification of such settlement. (c) *Primogeniture,* exclusive inheritance by the oldest child, is still the order of things with the noble families of England, and, of course, tends to perpetuate the existing inequalities more than would subdivision among several children. (d) In contrast with entail, settlement, and primogeniture, the democratic ideal as represented by modern France insists on *equal division* among the children. This is no doubt a great improvement, assuming that the tendency toward inequality is undesirable. (e) In these later years, still other influences are coming into play. If the significance

of inheritance is, as we said, dependent on prevailing laws, the tendency of present day legislation is to diminish that significance, *in toto*. The particular instrument used is the *inheritance tax*. This has already been developed to a very considerable magnitude and is everywhere being carried further. In Great Britain, it amounts to nearly 10 per cent. in the case of direct heirs and to about twice as much for the more remote collateral heirs.

d. In the United States one of the chief sources of great fortunes is the *public — governmental — grant*. Under heading "a" above, it was said that profits derived from the exploitation of stores of natural wealth were largely instrumental in building up fortunes. But the opportunity to obtain such profits naturally rests on the ownership or control of land and the latter in turn has largely been obtained through governmental munificence or folly in *granting* such land.

Here, those interested in moral issues might declare, *we have one of the greatest abuses in American industrial evolution. We have squandered the patrimony of many generations.* The *weakness* of government in a new and republican nation, a careless *over-estimate* of our resources, *preoccupation* of each with his own affairs,—these and other conditions have combined to make possible *a reckless profligacy in the disposition of our natural resources which future generations will find it hard to comprehend and still harder to forgive.* On the other hand, it might be argued that in some measure public liberality has been justified as part of the price of our extraordinary rapid development. The justice of government grants, however, is not our present concern. We are only interested in the fact that, right or wrong, such grants have been the source of a large proportion of American fortunes.

e. There can be no doubt that *fraud* of varying kind and degree has been an important factor in determining the distribution of possessions. Here we have in mind, not the fraud which enlarges income and which would therefore make pos-

sible the enlargement of possessions, but rather the fraud which *directly* adds to possessions, for example, getting control of valuable timber lands belonging to the state by illegal means. Under the preceding head, we noted the absurd liberality of government in turning over public property of incalculable value to private persons for little or nothing. The evils of such a policy have been increased in no small degree by fraudulent practices. By the collusion of legislators and public officers, the patrimony of the state has been stolen on a gigantic scale. Quite as notable, perhaps, has been the stealing of *franchises* yielding hundreds of millions. In the lesser relations of ordinary business also, fraud has played no inconsiderable part. Swindling of partners, freezing out weaker stockholders, violating trusts, etc., are constantly practiced, and constitute a very potent factor in determining the ownership of large properties.

3. Real vs. Apparent Incomes

Up to this point in our discussion of incomes, we have ignored altogether the possibility of a discrepancy between the seeming income and the *real* one. But a very little reflection will show that there is such a possibility. In the great majority of cases, apparent incomes are in the form of money, while real incomes consist in the sum of goods, other than money, which we may actually enjoy. But there is not, necessarily, any exact correspondence between these two. For, first, though money incomes are used to purchase our real incomes, yet the buying power of money may be, and surely is, very different in different places and in the same place at different times. Further, to get the really effective income which a man enjoys, as such words are generally understood, various other additions or deductions have to be made, even if we have made allowance for the differences in the purchasing power of money. These discrepancies between apparent and real incomes we shall now briefly discuss.

a. Income as Affected by Prices

Any cause which tends to change the *prices of particular goods* tends thereby to change the incomes of all consumers of such goods other than those consumers who are also producers of said goods.

One of the most familiar applications of this is found in *monopoly*. The greatest significance of monopoly, as modifying distribution, is in that, by raising prices, it reduces the volume of our real incomes. Another illustration is the *indirect tax* which, by adding to the outlay of the producer, causes price to rise, and so lowers the real incomes of those who purchase the goods. (A noteworthy feature of this case is the fact that a tax on imports makes a higher price, not only for the imported part of the goods consumed, but also for the part produced at home.) Still another important cause of this sort is *improvement in methods of production;* for these reduce costs of production and selling prices and, consequently, increase the effective income of purchasers.

Again, if for any cause there is a change in the *general level* of prices, this fact is likely to modify more or less the real incomes of people.

Some pages back we pointed out that changes in the general price level are likely to affect favorably or unfavorably one sort of income,—profits. The process there mentioned directly affects *money* income. But such changes in general prices may also modify real, as compared with money, incomes. A general rise in prices obviously lowers the buying power of a given income. Now, if at a time when the buying power of money is falling, particular money incomes remain absolutely or relatively fixed, the corresponding real income must certainly be reduced. The worst sufferers in this situation are annuitants, pension-receivers, and persons depending on contractual interest for their incomes. Next come the persons whose income consists of fees, and salaries, which, if not legally fixed, are anyhow slow to change. The case of wage-earners is hardly less serious; since the rate of wages

responds only with difficulty to changing conditions. Thus, the upward price movement consequent upon the paper money inflation of the American civil war reached its maximum for commodities in 1865, but for labor the date was 1872.

b. Incomes as Affected by Taxation

It is evident that, if, after a man has come into possession of his money income, government either directly or indirectly takes from him some portion of that income, his final income of gratifications of the ordinary sort is thereby curtailed. This must not be understood as implying that payments to government are in no sense correlated to a real income to the tax-payer. The expenditures of government are surely of advantage to the citizen; and, for some purposes, the citizen ought to think of his contribution to that expenditure as a thoroughly legitimate and important part of his personal budget. Still, we cannot rationally describe payments to government as the purchase price of services rendered, in the sense that we use these terms when speaking of payments to the grocer or the drygoods dealer. It is quite impossible to form any rational theory of the ethics of present-day taxation except by recognizing that taxes constitute a contribution which it is our duty to make, and the government's duty to exact from us, in order that certain general, public ends may be accomplished, —ends in which it is often extremely difficult to trace the personal advantage of the tax-payer. For our present purpose, therefore, it seems legitimate to look on taxation as cutting down our real incomes.

Starting from this viewpoint, we find that taxation tends to modify somewhat the distribution which would naturally result from the free, spontaneous working of economic forces, but to modify it less, on the whole, than one might expect. In fact a system of taxation which continued substantially unchanged throughout long periods would probably have almost no modifying effect on distribution. Such a system would simply become established as one of the fundamental

conditions under which the service-value principle would work itself out; wherever a tax might fall originally, it would be so *shifted* as to bring about the same relative distribution as would have prevailed without it. But, however this may be, we all know that *systems of taxation cannot, and do not, remain unchanged for indefinite periods.* Further, when a new tax is levied, its shifting in the manner indicated is not an easy matter which can be accomplished in a few months or even in a few years. Rather it may consume the life of a generation. This being true, it is important to ascertain some of the effects on distribution which will be produced at the outset, and, if desirable, guard against them.

It is usually admitted, for one thing, that indirect taxes, such as import duties and excises, if levied in a way to be greatly productive, fall with relatively greater weight on small incomes than on large ones. The reason is that taxes of this sort, to be effective in raising the billions required by a great nation, must be levied on the fundamental necessaries of life. If they were levied on luxuries, the people of small incomes would escape payment, but the total returns would be insignificant as compared with governmental requirements. On the other hand, taxes levied on salt, woolen fabrics, tobacco and other goods of universal consumption, can usually be depended on to fill the treasury. But, of the fundamental necessaries the poor man must buy from his thousand dollar income almost as much as the rich man buys from his hundred thousand dollar income. It follows that such a tax falls with much greater weight on the poor man than on the rich one.

Again, a general property tax affects the incomes of persons owning visible property much more than the owners of bonds, stocks, etc. Buildings, land, live-stock, furniture, and equipment of all kinds are bound to pay an undue proportion of a property tax; for, being visible and tangible, they are easily assessed at something near their real value, and their location is fixed, so that they cannot "dodge." The owners of

stocks, bonds, mortgages, and other intangible property have innumerable ways of concealing or disguising their holdings until the assessor has passed. They can also claim *residence,* and therefore the *location of such properties, in some place outside the region of high assessments.*

Finally, a land tax of long standing *does not constitute a burden on any private income.* Suppose a tax is imposed on a piece of land, and, afterward, the owner decides to sell it. Prospective purchasers will now capitalize the value of the tax, and subtract this value from the price which they would pay for the land untaxed; in other words, the value of the land falls by such a sum as, at the probable rate of interest, will pay the tax in perpetuity. Thus, by a backwardation process, as it is called, the first man who sells a piece of land after a tax is levied on it really pays the whole tax. Or, to put it in another way, the government becomes, in effect, a part owner of the land, an owner in the proportion represented by the amount which was deducted when the land was sold. The yearly tax which is thereafter collected from the purchaser is merely a rent received by the government in view of its part ownership in the land.

c. Effective or Consumptional Income as Contrasted With Absolute Income

We have already noted various deductions which must be made from, or additions which must be made to, one's apparent income, before we can know what the real income is. Another set of deductions or additions is suggested by setting *consumptional* over against *absolute* income. When people speak with indignation of the excessive incomes of the very wealthy, they usually are directing their attention to the fact that people of wealth enjoy so much more than their neighbors of the good things of life, fine foods, beautiful furniture, automobiles, travel, etc. In short, they have in mind their consumptional income,—what they consume, in the popular meaning of the word, for their immediate gratification.

Now, as a matter of fact, when incomes are conceived this way, there is much less difference between those of the rich and poor than seems on the surface to exist. The man whose apparent income is, say, $100,000 consumes in the ordinary sense perhaps only $20,000 worth of goods, the remaining $80,000 being invested and devoted to further production. Of course this new investment will increase his absolute income. But what if it does? He very likely does not care to alter materially his habits of living. He therefore has no use for the increase except to invest it in turn. Thus, as respects his total of income, with the exception of $20,000 a year, the rich man may be thought of as a sort of steward for society at large, paid a good commission indeed, but after all only a steward. His income, his enjoyment of goods, is not 100 times that of the man who earns $1,000 and spends it all on every day consumption, but only 20 times. As a complement to this point it is to be noted that, in order to realize just how great is the real, effective income of the poor, we must add a large number of gratuitous and semi-gratuitous goods which under modern conditions are supplied to them. Especially notable are the means of education and amusement furnished so liberally at public expense.

CHAPTER XXXIII

CRITIQUE OF DISTRIBUTION

PROPOSED SUBSTITUTES FOR THE EXISTING PRINCIPLE

In the opinion of not a few persons, we have now reached the end of our proper task; we have covered the whole field which can be legitimately included in a purely scientific study of Economics,—the analysis of the existing economic order in respect to structure and functions. To go further and undertake to pass judgment on the satisfactoriness of the existing order, seems to these persons a plain transcending of our proper sphere. The title of the present chapter shows that the writer does not share that opinion. I consider it a very important part of the economist's task to study the present order in respect to its fitness or unfitness to realize the ends for which it must be presumed to exist.

My principal reasons for holding this opinion are as follows: First, in dealing with the existing economic order, as with any structure to which the term "organism" can be applied, the most strictly scientific study—one which has no other end than a really adequate knowledge of the facts—cannot properly omit a consideration of the fitness of the several organs to perform well their respective functions. What physiologist, after determining the function of some bodily organ, would consider his task completed until he had made an attempt to learn the degree of efficiency attained by the organ in performing its function?

But the study of the working fitness or unfitness of the present economic organism has another and more practical justification. That organism, in both structure and function, is to a considerable extent the product of consciously free arrangement. At many points, it is what it is because we make

it so. Doubtless, this aspect of the matter can easily be exaggerated; the power of individuals or of society as a whole to alter the system in fundamentals can be, and commonly is, overstated. But, so long as this power exists in even a small degree, the student of economics is surely called upon to consider the fitness of the system, as at present constituted, to attain its proper ends. For where he finds it fit, he will wish to exert his power in support of it, and where he finds it unfit, he will wish to have it changed.

It may be objected that, while we have here a problem which imperatively calls for solution, the task is after all one which does not properly fall to the economist. The solution, of course, requires economic data; but the problem itself is essentially an ethical or political one. Logical consistency, therefore, requires that the economist, while furnishing the needed data from his own science, should leave the problem as a whole to the men who can claim to be authorities in ethics or politics. There is no doubt some force in this contention; but it does not seem decisive. First, we must always remember that there is a degree of deference to logical consistency which spells pedantry rather than any practical good. Secondly, there are many problems in which elements from different fields of study are closely commingled; and a person who undertakes to solve these problems must weigh and pass upon the elements from every field. This means that such person must transcend in some measure the strict boundaries of his subject. But, if none of the persons interested can make an absolutely legitimate claim to the task, it would seem reasonable to turn it over to that particular one whose science furnishes the larger number and the more difficult of the data necessary to a solution. In the case before us, this condition is surely realized by economics.

Economics, then, would seem to be the science which would naturally essay the task of ascertaining how far the present economic order is fitted to attain the ends for which it must be presumed to exist. We do not mean to suggest

that moralists, sociologists, *et al.* should be stopped from discussing this subject, but merely that economists can also discuss it, and perhaps with more propriety than any other group of thinkers. In further support of this contention we may remark that such practice is, on the whole, in accord with the best traditions of our science. Economists of standing, whatever their initial professions, have rarely failed to comment upon the workings of our system from the teleological standpoint and even to argue for or against proposed changes. And it is probable that the instructed public give more weight to the verdicts of economists regarding such matters than to those of any other class.

In the preliminary account with which this course began, the existing order was represented as a coherent, rational whole, a system having different parts devoted to different functions, all co-ordinated into a great harmonious totality. At the same time, we saw that the organizing and regulating of this great totality was not conscious, but spontaneous, automatic; and that the particular economic process having most part in creating the great whole and regulating its operations; is exchange, and especially that element in exchange which we know as *value, price.* We explained, further, that it is price chiefly which determines what things shall be produced, how things, when produced, shall be utilized, and what proportion of the total product shall fall to the different participants in socialized production. In the present and succeeding chapters we try to answer, not exhaustively, but with greater fulness than heretofore, the question: *How far is this automatically regulated economic system a success in attaining the ends for which it exists?* Does it accomplish in a fairly adequate manner *its special task*: *namely, providing for the satisfaction of human wants in so far as this is dependent on economic goods?*

In view of the tone of many previous allusions to this question, it is hardly necessary to say that the answer here offered

is on the whole an affirmative one. Broadly speaking, we look on the existing economic order as measurably realizing the ideals which, considering the limitations of human nature, it is reasonable to demand from such a system.

But in taking this position we wish to disclaim in the most emphatic language any intention of representing the present order as a perfect one, either theoretically or practically. Its ideals are below the highest, though necessarily so as we think; and its practice is at many points far below its ideals. Many of its failures grow out of the limitations of human nature; but not a few are needless,—can be avoided. Increased interference with the actual working of things, both through private and governmental initiative,—if for no other purpose than to eliminate elements which are, and always have been, inconsistent with the system,—is imperatively demanded. Further, there can be no doubt that a degree of governmental interference going much beyond this, and limiting sharply the free working of those conditions which are most characteristic of the present order, ought to be, and will be, forthcoming in the near future. Whether in the interest of society as a whole or of those individuals on whom the existing system presses too hardly, we shall doubtless see a more extensive resort to governmental initiative, a greater limitation of the rights of property, a further restricting of the rights of inheritance and bequest, a distribution of tax burdens far more favorable to the poor, public provision for old age pensions, and so on.

In a word, when we defend the existing order we merely mean to affirm that that order is *in its main outlines* substantially sound, fitted to attain the reasonable ends for which such an order exists. Looked at broadly, it shows itself to be highly efficient and as much in accord with our moral ideals as we could expect in view of human weakness, folly, and wickedness. The general plan of exchange-co-operation, involving private rather than public initiative, characterized by private property in capital and, for most purposes, in land, with production, consumption, and distribution regulated in general

through a price resulting from free economic action, is more likely than any fundamentally different scheme to work in a measurably satisfactory fashion. Increased regulation and a more liberal admixture of socialistic elements may improve things; but the general system, the main framework, is sound and, as human affairs go, fairly adequate.

In attempting to answer the general question concerning the satisfactoriness of the existing order, we begin with the critique of that order in respect to *Distribution*. The reason for beginning at this point should readily be understood. Men's wants lie at the root of any economic order; and, presumably, the satisfaction of men's wants is the object of such an order. The ultimate test of an order, therefore, must be its success in satisfying these wants. But the phrase "men's wants" is ambiguous. Not all wants, surely, can be satisfied. As between lesser and greater wants, in the case of the individual, the satisfaction of the latter must take precedence. As between different individuals, we might set up any one of many standards. Thus, we might rate the importance of wants according to their *absolute magnitude,* supposing it possible to ascertain this. That is, we might treat any want, whether that of a person contributing much to the general advantage or contributing little, as having an importance exactly proportioned to its intensity. Again, we might recognize the *total* wants of every person as having *equal importance* with the total wants of every other person. Still again, we might treat the wants of different persons as having very *different degrees of importance,* according as the part played by these persons in economic matters is of little or of great importance. And many other standards might be imagined, determining just what are the wants which we have in mind when we declare that the end of economic action is the satisfaction of "men's wants."

But, not only is the phrase "men's wants" an ambiguous one, needing definition before we can proceed to pass judgment on the fitness of an economic order to accomplish its

task—providing for the satisfaction of those wants,—*the process by which this defining is done,* the process by which society determines what are the "men's wants" that should be satisfied, *belongs to that part of Economics which we have called Distribution.* We could, indeed, conceive an economic order in which the state directly determined the importance of different wants and directly provided for their satisfaction in accord with that determination. Such a system has been tried more or less adequately at different times, and is usually designated communism. It is more or less fully illustrated in the life of the family. But the present economic order, as also the much-advocated system of Socialism, solves the problem by authorizing a system giving to each individual a certain money income which he uses to buy the commodities or services which constitute his real income. In doing this, *the state determines the relative importance of the total wants of each individual over against other individuals* and leaves the determination of the importance of the different wants of the individual to be settled according to his own ratings.

But, if the goodness of an economic order must be judged by its fitness to secure the fullest possible satisfaction, in their proper proportion, of that body of wants which society has decided are the ones that ought to be satisfied, and, if such deciding by society is effected by maintaining a particular system of distribution, it follows that said system is the necessary starting-point of any critique of the economic order in question. Once we have determined whether the system of distribution is or is not reasonable, the rest of our task is comparatively easy. The remaining parts of the economic order are good or bad according as they do or do not contribute to the realization of the ends implicitly approved in the system of distribution,—*according, in short, as they are or are not consistent with, complemental to, the system of distribution.**

* This argument, when combined with that of the present and following chapters defending the present system of distribution, has been objected to on the ground that it involves circular reasoning. This objection will be commented on in Chapter XXXV.

This broad statement of the matter doubtless needs various qualifications. Certain public or group wants are not provided for in the system of distribution, at least as we have treated it. But this qualification is manifest; and the state has no difficulty making its wants supersede all others, either by coming on the market with a buying power vastly exceeding that of any individual, or by the exercise of its absolute sovereign authority.

Another qualification is needed because the government, believing that it is desirable to modify in some particular the working of the system of distribution and despairing of being able to do this by direct means, may make use of its power to guide the employment of social resources in order to accomplish its object by indirection. Thus, as was noted quite early in our study, a characteristic feature of the present order, in its actual working, is the governmental practice of producing certain necessaries and supplying them to the public either gratuitously or at a price below what would be possible under private initiative.

In spite, however, of these and other possible qualifications, the soundness of the general proposition laid down above is incontestable. The system of distribution prevailing at any moment must be interpreted as embodying the decision of society in respect to the body of wants to be satisfied through the working of the economic order, and therefore embodying *the decision of society as to what are the true social wants arranged in the order of their importance.* If following the guidance derived from this system of distribution results in what seems, on other grounds, to be a wrong use of our resources, this must be viewed as an indictment, not of the process whereby production is regulated, but rather of the system of distribution which society has authorized. If amendment is needed, that amendment should, with few exceptions, be directed to the alteration of the source of the trouble, the system of distribution itself. Accordingly, our critique of the

present economic order begins with a consideration of the reasonableness of the system of distribution embodied in that order.

The general principle underlying the present system of distribution, we will remember, runs as follows:

When competition is free, each individual tends to *get approximately that income which expresses the marginal significance of the natural supply of the type of contribution made by himself or his property to the sum of utilities, and which at the same time expresses approximately the marginal disutility involved in making that contribution.* Is this principle, on the whole, wise and just?

No adequate critique of the dominant principle of distribution can be effected without contrasting that principle with possible substitutes. It will perhaps be best, therefore, to begin by examining some of the more plausible substitutes that have been suggested, reviewing their merits and, if such exist, their logical or practical defects.

One principle of distribution often highly commended is that which we try to realize in family life, as also in the life of the state during periods of greatest social exaltation. I mean the principle *that each shall receive of the common income in proportion to his need,—having given in proportion to his capacity.* This seems to have been, and to be still the formula of the highest type of communism. "*From* each according to his *capacity; to* each according to his *need.*"

To the present writer there seems no room for argument as to the ethical superiority of this distributive ideal over all others. If human nature were capable of maintaining it, no other formula would deserve a moment's consideration. But unfortunately there is reason, and perhaps quite conclusive reason, to doubt the sufficiency of human nature in this regard. Even those few hundreds of people who succeed in living somewhat near such an ideal in Amana and other communistic associations admit that their very limited success is

made possible only because of certain intense religious sentiments which are common to all the members. And no one seriously believes that uniform sentiments of this kind exist, or can ever possibly exist, in more than a small minority of the hundred millions of men, women, and children who constitute the population of the United States.

Another ideal which seems to have been more or less consciously held by many socialists of the earlier type, is that each person should share in the joint income *in proportion to his labor.* This of course can be differently interpreted. One may have in mind the *sacrifice* made or the *results* accomplished. And he may conceive the sacrifice as measured in a subjective standard or as measured in an objective one, like *time.*

In general, the socialists seem to have had in mind primarily the *sacrifice* of labor as measured by the *time* spent in applying it. Yet they tried to avoid divorcing this completely from results, by insisting that the labor must be labor which *produced things,* and *standardized* labor, at that,—labor which in the given place and time was *"socially necessary"* to accomplish the result. Marx* further conceded that we could not treat all kinds of labor as exactly the same, though he would not admit *qualitative* differences. The labor of the artist and that of the mechanic must be treated as *differing in intensity,* or density, so to speak. That is, one hour of the artist's labor should be reckoned as the equivalent of, say, three of the mechanic's.

The labor ideal as thus interpreted, though not without points of merit, has fundamental defects which render it unworthy of extended discussion. Any scheme of distribution which can reasonably ask for society's favor must in serious measure *make economic reward conditioned upon economic significance, must make differences* of economic reward *cor-*

* The most eminent of the theorists who laid the foundations of Socialism.

relative to differences in economic *significance.* This Marx tacitly admits by refusing to reward labor which produces nothing useful, and by insisting that all labor must be standardized, reduced to "socially necessary labor." But differences in the economic significance of the several kinds of labor often show no correspondence either to labor time or to labor intensity. It is therefore quite out of the question that labor as measured in labor time, even when corrected for intensity, should be accepted as the principle of distribution.

Another conceivable ideal of distribution, more or less definitely held by many intelligent people, may be called the *Social Service* ideal. This idea differs from the one embodied in the present order in that, under the latter, each person receives a price which expresses the significance of his services to individuals *graded according to the buying power they possess;* while, under the social-service principle, a man would be paid according to the significance of his services to the group as a whole or to all individuals without any reference to their wealth or poverty.

This ideal has at the first hearing an extremely plausible sound. There is something particularly obnoxious in the fact that, under the present system, the power to furnish services of a very trivial sort, or even services highly immoral in their character, enables the owner to command a large income, because persons desiring such services chance to possess great buying power. It would seem much more equitable that one's income should depend upon the services of real worth which he renders direct to the humanity which is in all men alike, or to the worthiest needs and demands of the entire social group.

But further examination shows this principle to be seriously deficient. First, in so far as it concerns the group as a whole, the new principle is already contained in the one which governs our present system. The group is fully organized and, through the use of the sovereign power of taxation, can insure that group wants are satisfied at whatever cost,—can

see in other words, that men are paid in accord with the importance of the service they render to the group.

Secondly, the proposed ideal, as applied to individuals, is *self-contradictory*. For a principle of distribution simply can not pay according to the importance of the service rendered without paying according to the importance of the service to individuals *graded according to buying power*. (a) Since men are to be paid in accord with services rendered, they are to be paid unequally. (b) This means that the effective demand for commodities and services will be unequally distributed. (c) But the distribution of effective demand will necessarily determine in what proportions people will actually *consume* goods. (d) But the only importance which can signify anything is importance to actual consumers. (e) It follows, therefore, that to pay for services according to their importance to individuals without discrimination as to wealth or poverty, is to pay for those services in accord with their importance to persons who do not get them at all,—a process which really amounts to paying for services *without regard to their importance*.

The last ideal of distribution which we shall here discuss is that of equality. To each an equal share; but from all, service, is its motto. This is the more usual communistic ideal, and it is apparently favored by many socialists. Nor can we wonder at its popularity, for there is indeed much to be said in its support. The greatest discomfort from poverty—not the absolute want of the poor, but their contrast with more favored neighbors,—would, under such a principle, be overcome. Further, equality would not fail to bring a degree of satisfaction to many people, those who descended as well as those who rose, even if the equality were one but little removed from misery.

But, after all, this principle is quite impractical. Equality in income, though serving well various sentimental considerations, would sacrifice to these the real, material welfare of all classes. Further, it would not even embody the ethical

ideals which dominate practically the whole community. For, however people may feel toward interest, rent, and profits, they almost universally believe that wages and salaries *ought to bear some relation to service rendered.*

But the subject is too important to be so lightly disposed of. Are we right in saying that an attempt to enforce complete equality would sacrifice the real material welfare of all classes to mere sentimental considerations? In support of this view, there are three chief sets of facts:

1. In the first place, giving some persons larger incomes than the rest of us may be directly required in the interests of the rest of us, in that the larger incomes are necessary to enable those persons to perform efficiently the important tasks we have assigned them. Thus no thoughtful person would contend that the people of the United States could afford to have their chief executive live on $1,000 a year, even if he were perfectly willing to do so. To perform at all well his services to the people of the nation, he must spend, on matters more or less personal in their nature, many times $1,000. What is true of the president of a great republic is true in only lesser degree of hundreds of other men. In fact, if we sufficiently narrow the circle of interested persons, it is true in a way for almost every male citizen. To the other members of his family, it is more important that the breadwinner, though the humblest of day-laborers, should be well fed than that the rest should be, because only so can he be fit to earn the income on which they all depend. But, of course, the point is more forcefully illustrated in the greater relations of society. To those men whose functions involve large responsibilities, intense mental activity, and great nerve strain, we must, for our own sakes, give large incomes, in order that they may prove resolute, clear-sighted, well-poised, and in other respects fitted for their great tasks.

The objector may say that we really have here a case not of better income, but rather of *collateral expenses.* Needs of this kind should be provided for as part of the *outlay of the*

office which the man holds. If $1,000 is the best income the community can afford its members, the president, *as a man,* must be satisfied with that income; though *on his office* we may spend $100,000. Doubtless something, perhaps much, could be done along this line; the writer heartily believes in employing such a policy wherever possible. But the whole difficulty could not be met in this way. A need is often so *personal,* so individual, in character that it cannot be provided for save through a fund placed at the disposal of the person interested. One person requires one sort of relaxation, perhaps a very inexpensive one; another requires a very different sort, perhaps a very costly one. Further, the employing public (under socialism), whose opinion is greatly influenced by persons not in a position to judge of the personal needs attaching to the higher social functions, would commonly underrate those needs, as is shown in the niggardly salaries now paid public officials in democracies. In consequence, provision for this kind of need, if made in a formal sort of way, would probably be far too small.

2. The preceding paragraph has named *one* reason why inequality of incomes is necessary in the interest of the very persons whose apparent incomes would be raised by the abolition of that inequality. A second and still better reason, belonging in a way to the same class, is found in the fact that unless incomes are unequal, they will not even approximately express the relative sacrifices which men undergo in contributing different services, and, so will induce an oversupply of services which involve small sacrifices and an undersupply of the opposite kinds.

This difficulty has always been recognized by the creators of utopias; and to meet it a great variety of ingenious schemes have been devised. Thus, some writers have proposed that *conscripts* from all classes should have to serve a certain length of time in objectionable trades. Others have reserved these occupations for the *convicts.* More recently, we have had much stress laid on (a) *variations in the length*

of the labor day and (b) *honor rewards.* An undesirable occupation might be made less unattractive by reducing the day from 6 hours to 4, or 3. So, attractiveness might be given the occupation by attaching thereto decorations and official rank.

Now, it seems highly improbable that these devices should have anything like the effectiveness which is anticipated from them. The honor device, especially, overlooks the fact that honors, to be effective as a stimulus to emulation, must not be *too commonly* employed. Gaining a prize is not worth while, if almost all the contestants gain prizes. Being a member of an academy which every one can join by paying $5, will attract people only so long as they are ignorant of the facts. But, whether these schemes are practicable or not, there can be no doubt that they are *inconsistent with real equality.* Why do I object to my neighbor's having a better income than I, supposing mine to be enough for a decent life? Mainly, it is because the spectacle of his enjoying advantages which I cannot enjoy detracts from my peace of mind. Now, what matter as to the source of these advantages? To see him watching the great national game, or comfortably lying in the shade, while I toil and sweat in the sun would surely awake in me an unpleasant sense of contrast if these privileges were granted him as a direct reward for accepting some task, just as truly as they now do, when they come as an indirect reward for that same service. So, again, one of the greatest objections to the inequality of the present order is that it gives to the men of larger incomes a higher place in the estimation of their fellows, better social standing. Will this deeper sort of inequality be any less obnoxious when it is *directly* created than when, as at present, it is the indirect result of inequality in money income?

3. There is still a third reason—and this is the weightiest of all—why people generally, considered as consumers, must in their own interest prefer that some other persons should receive better incomes than themselves. There must be inequality

of incomes, some contributions must command much higher prices than other contributions, because *only in this way can it be made certain that society will make the best use of its resources,* its productive capacities.

In an earlier discussion it was shown that, in a world like ours where different kinds of primary factors, limited in amount and capacity, enter in different proportions into the production of different commodities, *each of those kinds of factors will have its own special significance* or importance as determined by its contribution to the production of goods. Further, under the present system of free private initiative and exchange, *the assigning to each factor a price which expresses approximately its true significance is accomplished automatically.* Now, *by some process or other, the same task must be performed under any system of economic* organization—communism, socialism, or what not. For, otherwise, we could have no assurance that we were making the best use of our capacities.

In the first place, assigning to things their proper price would be necessary under socialism no less than under the present order, *as a part of the public system of bookkeeping.* If the state were to become the sole landlord, capitalist, and entrepreneur, it would be obliged to carry on an elaborate and complete system of bookkeeping in order to have at hand the knowledge of conditions necessary to a reasonable conduct of economic affairs; and, in this bookkeeping, the state would need to credit each primary factor with the true significance of that factor, since, otherwise, it would frequently waste important factors on unimportant commodities. In short, whether or not men were actually to receive unequal incomes, *they would have to be credited with unequal contributions.*

But when each person has been credited with the true value of his contribution, can it be doubted that, under any system which is in the remotest degree practicable, that value, or something approximating it, would have to be paid to the man who made the contribution? We say "under any system

which is in the remotest degree practicable"; for one might admit that a despotically organized communism, effecting and regulating co-operation through *authority,* could "exploit the workers"—to use a socialist phrase—could give equal remuneration for very unequal services. But surely no communistic plan yet proposed is to be taken seriously. We need, therefore, to consider only socialism. Could that system of economic organization escape paying men in proportion to their contribution?

The answer is surely a negative one. One could, indeed, *conceive* a socialist state which at first thought would seem able to avoid the necessity of adjusting reward to contribution; I mean a state conterminous with the earth and organized as a completely centralized despotism. Such a state might seem to be emancipated from all necessity for paying its workers according to any standard other than its own will, because competition would have been completely eliminated. As a matter of fact, however, I doubt if even this vast despotism would be able to exploit the capable in the way supposed, and that for two reasons: (1) the capable would probably be in power, and (2) whether or not, they would know their own importance and, by a refusal to work for less, would compel the authorities to raise their pay till it approximated the real value of their services. But it surely is mere idleness to build upon the fantastic assumption of a co-operative commonwealth coextensive with the earth and organized as a completely centralized despotism. If we ever have a collectivist state, it will be one among many sovereign states, and one in which local autonomy, municipal and provincial, still exists. It will, therefore, be a state in which *competition* still exists. Different municipalities, different commonwealths, different sovereign states will more or less vie with each other in trying to attain the highest efficiency, and so will drive one another into paying the persons who supply the different kinds of productive services something like what those services are

worth. But, in doing this, they will of course make the shares of these persons in the social income unequal.

In short, while inequalities in distribution need not always be so great as they are today, while they would be much reduced under a socialist regime and no doubt *will* be much reduced under the present regime; still, inequality of some degree is inevitable. The ideal which would give to each citizen an equal share with every other is quite out of the question. The remuneration received by each must bear some relation to his contribution.

Finally, as a general result of the discussion in this entire chapter, what do we have? We have examined all the chief substitutes for the existing principle of distribution that have been proposed; and while we have found them commendable in many respects, and especially as regards their humanitarian purpose or intent, we have also found them one and all, on the whole, impracticable,—it is doubtful whether, for the present at least they can be established. This being true, it is virtually certain that the existing principle, with possible modifications, will for some time be continued. It therefore becomes of the first importance to determine whether that principle, since it needs must be endured, is any more defensible than these others. To that task we shall turn in the following chapter.

CHAPTER XXXIV

DEFENSE OF THE PRESENT SYSTEM OF DISTRIBUTION

In the chapter just concluded, we tried to prepare the way for a defense of the existing system of distribution, especially in respect to its general principle or ideal, by showing the impracticability of the ideals which have been proposed as substitutes for the one dominating the present order. We now undertake the positive defense of the present system, both in respect to its general principle or ideal and in respect to the more prominent features which appear in the working out of that principle. We begin with the former of these tasks.

Section A. **Defense of the Service-Value Principle**

That the service-value principle is entirely defensible, if it is not in fact the only defensible one, has almost necessarily been established in arguing for the impossibility of the equality ideal. But it is perhaps best to give this point a formal statement and comment on two or three objections.

There is one justification for the Service-Value principle which, from its very nature, can hardly fail to be decisive. That one is **necessity.** Under no other principle could the economic action of a society, in which any degree of individual liberty or local self-government was retained, be *so guided as to make the best use of its capacities.* Theoretically, perhaps, a despotic state, world-wide in extent and completely centralized in administration, could, after much experiment, approximate the result by ruthlessly exploiting the capable in the interest of their fellows and of society in general. Even here, however, it would be necessary to *credit*

each agent in production with the whole value of his contribution. For value, price, is nothing more than a special method of expressing the relative importance of things. Correct prices, therefore, are necessary to furnish us with correct estimates of this relative importance. But, further, in dealing with elements the output of which depends on human consent, it is not enough that we have correct paper prices,—bookkeeping prices,—we must also have correct real, objective, prices. We must *pay* correct prices; for, only *in that way, can we insure the forthcoming of the several elements in their proper proportion.*

Even a socialist state, if such a one is ever established, will find itself obliged to pay its employees in a general accord with the true values of their contributions. It may effect vast improvements for the majority of men by eliminating many violations of the service-value principle which corrupt the present order. But, after all, it will be compelled to adopt as its general guiding principle the same old rule that the values imputed to things must be a true expression of their marginal significance, and that things bought on the open market and having prices, must have prices which correctly express their true value.

The foregoing paragraphs have outlined the chief positive argument in favor of the Service-Value principle. Let us take a moment to comment on one or two objections.

1. There appears among many people a disposition to criticise the ruling principle of distribution because it pays men in accord with their *effective* utility rather than their *absolute* utility. Thus, the utility of coal miners as a class is surely far greater than that of high-grade singers as a class; but society pays a miner for an hour's work, perhaps, 40 cents, while it pays the singer for an hour's work, perhaps, $2,000. This objection always arouses a sympathetic response in the popular mind; but to the student who has acquired a fuller comprehension of economic relations, it is quite without point. A person who puts forward this objection really admits by

implication that it is right to have men paid *in accord with the importance of their services;* he only complains that we *set the wrong standard* for judging importance. But his complaint is of course a mistaken one. The real importance of any man is his *effective* importance,—*what we should lose if we lost* him, not what we should lose if we lost *his whole class.* For usually the alternative facing us is, not keeping or losing the whole class, but keeping or losing an individual of the class. And what we lose by losing any individual of a class is only the utility of the least useful of the class, since the loss of any higher utility would be avoided by transferring the least important member of the class from his present task to the higher one.

2. Another familiar objection to the Service-Value principle is that it pays a man, not in accord with *his own specific* utility, but in accord with the utility of the *marginal member of his class.* Thus, a man may be performing some service for which his employer is glad to pay him, and does pay him, $2 a day; when, without any fault on his part, an increased supply of labor comes on the market and lowers the marginal utility of his class to $1.50 per day, with the final result that, though still performing the $2 service, he now gets only $1.50. Viewed from this man's standpoint the situation naturally makes a powerful appeal to one's sympathies. But what about the incoming man? He surely cannot be paid more than the $1.50 which he really earns. But, if the first man continues to get $2, while this second one who is working just as hard and is perfectly able to replace the former gets only $1.50, our sense of justice would be outraged just as much as in the former case.

But, again, the objection is quite untenable logically. If a man is to be paid in accord with his importance at all, the importance in question must be real, *effective* importance. But the real, *effective* importance of a man is determined, not by the importance of the thing *he* accomplishes, but by the im-

portance of the thing which *the marginal member* of his class accomplishes.

3. Probably the misgiving which most persistently recurs to all of us concerning the service-value principle, is that to defend or even patiently accept it, one must be somehow too *cold-blooded,* too insensible to considerations of sympathy, humanity, love of one's fellows. When one is exercising his logical faculties on mere abstractions or is dealing with mere things, he can recognize the working of an inflexible scientific principle, without a qualm. But here the interests at stake are the incomes and, therefore, *the happiness of living human beings.* Is there not something inherently shocking to our moral sense, even to our sense of mere decency, in the advocacy or adoption of a principle which places interests like these at the mercy of so unmoral a thing as the law of supply and demand, or the law of marginal utility? Does not every right-minded man respond with full approval to the belief expressed by Mill that a time would come when the division of society's product, instead of being a matter of automatic, mechanical, regulation, *"would be made by concert on an acknowledged principle of justice?"* In fact, is not this whole attitude of mind which conceives human beings as mere instruments, mere *things,* inherently wrong? Must we not rather at all times conceive human beings as ends in themselves?

Now there is surely some force in all this. We saw in the preceding chapter that it is *at least possible to imagine* a principle different from, and higher than, the one now operative. We believe also that the working of the principle in the actual order can be greatly improved by changes which would better satisfy the demands of moral and humanitarian sentiment above alluded to. And we believe that its worst tendencies could be, and are, not a little offset by a secondary distribution through voluntary benevolence and the use of the taxing power,—all this in obedience to the same moral and

humanitarian sentiment. But, when all is said and done, we can only imagine a radically different system—not really establish it. We can only modify the working of the present principle, not overthrow it; we have no choice but to submit to the principle as it is. Whether the principle shocks our sentiments or not, therefore, the least we can do as scientific students is frankly to recognize its reality.

But in fact there is no good reason why the existing principle of distribution should offend our moral sentiments. Rather, the contrary. If the service-value principle is the only one which can sustain society from falling into the poverty and misery of communism, then it would not be difficult to make out a case showing the principle to be positively humanitarian. Nor need we, in the second place, feel too keen a response to the notion that it is wrong ever to conceive of human beings as *functioning* in some relations *like mere instruments or things.*

There is nothing *per se* unworthy or degrading in taking one's turn at being a mere thing in economic society. Doubtless we all ought to have our opportunity to live for living's sake, to be ends rather than means. But this is perfectly consistent with our being mere means to an end much of the time. Further, it is quite easy to overstate the case. Men who emphasize their right to be ends are likely to overreach themselves. Most men of mature years have learned that, in the long run, scarcely anything is really worth while, even from the purely selfish standpoint, except to set oneself a suitable task and conscientiously perform it.*

* By a curious inconsistency, people who emphasize this objection seem to have no sensitiveness on the matter, *provided the station in which one serves as a mere means is sufficiently dignified.* We hear nothing in this vein when they are speaking of doctors, lawyers, professors, politicians, and others of the higher classes of workers, though of course these persons are, on the professional side, mere instruments, mere things, just as truly as the common laborer.

Section B. Defense of the Three Property Incomes in the Abstract

In the preceding section we have defended the general principle or ideal of distribution embodied in the present system, as necessary to social welfare, and, on the whole, reasonable and just. But this leaves much of our task unaccomplished. The service-value principle might be all right, abstractly considered; but it can be realized only under a concrete set of conditions. It must work itself out through definite institutions, legal prescriptions, customs, economic laws, and so on. As thus working itself out, is it defensible? The conditions in question, as we know, are very numerous and complex. To cover the whole matter thoroughly is of course quite beyond us. We must content ourselves with comments on the most important points.

Primary economic distribution, as we have seen, depends chiefly on the kinds of shares or sources of income which are permitted and the natural laws determining the volume of these shares. The former of these two conditions depends largely on *what kinds of property are permitted*: especially whether private persons may or may not own capital or land. The latter is the general principle of distribution we have already considered. Less immediate conditions are those which determine *secondary* distribution, for example, the natural laws regulating the prices of those goods in the purchase of which we spend our money incomes, and the distribution of public burdens such as taxes. We shall consider mainly the legitimacy of the shares or sources of income by which *primary* distribution is determined, more especially the three property incomes, since the labor income, wages, is not, in general, seriously challenged. In the present section, we consider the legitimacy of these different shares *in abstracto,* that is, as naturally going to some one who can establish a valid title to the property from which they spring. Since the validity of a title set up by the state would probably not be challenged

by any one opposed to the present system, we will argue for the legitimacy of the shares in question, *supposing the state to be the recipient of those shares.*

1. The Legitimacy of Interest in the Abstract

In an earlier connection, we discussed the various manifestations of the interest phenomenon in the existing order, naming two general classes: explicit and implicit interest. Under thorough-going socialism, explicit interest—interest on contractual loans—could exist, if at all, only on the smallest scale; since, with the state occupying the position of sole entrepreneur as well as that of sole capitalist, *productive* borrowing from the state would be consciously restricted within very narrow limits. Accordingly, interest in such a state would mostly be of the *implicit* type,—it would show in the prices of goods. In the case of goods which were sold to private persons it would show in the prices quoted on the market, and in all cases it would show in the prices recorded on the books of the government. We will begin with the second kind of prices, those recorded on the government's books.

As has already been pointed out, if government hopes to perform with any sort of success the stupendous task of conducting all industrial activity, it must keep a complete, detailed, and trustworthy set of accounts to represent the true values of both immediate and ultimate goods. Without these accounts the government could never be sure that it was conducting its vast interests in such a way as to make the best use of the resources at its command. In short, the government of a socialist state will need just as elaborate and complete a system of values and prices as that existing today.

But it is of course possible that these necessary values will in many instances be somewhat different from those of an individualist regime; it is even possible that some particular values may disappear altogether. A commodity or a service

comes to have value only when two conditions at least are fulfilled: (1) its disposal must yield some advantage, and (2) there must be some limitation on its supply whether absolute or conditional (cost). Now it is conceivable that, under socialism, one or the other of these conditions will be lacking in *certain cases where,* under the existing regime, *both are present.* Thus, the advantage derived from a service today, may be of such a nature that it will disappear when socialism is established—for example, the services of an office furnishing abstracts of titles. On the other hand, the effective limitation of supply now existing may be due to the arbitrary action of a monopolist, and so will be bound to disappear under socialism.

Are either of these changes possible in the case of interest? Would the advantages for which interest is paid disappear under socialism? Would the supply of the condition which furnishes that advantage prove so abundant that it would no longer have marginal utility and therefore no longer have value? A negative answer to both questions seems inevitable.

First, the advantages for which interest is paid would not disappear under socialism. The essential nature of the transaction through which interest arises is the exchanging of future for present goods. That is, interest is usually a price paid for the privilege of having goods now, though we do not pay for them till later. Now, this privilege carries with it different advantages under different circumstances. Of these, the greatest is described by saying that capital is *productive.* By getting control of a fund of wealth *now* while freed from the necessity of paying for it till later, we are enabled to choose the more efficient methods of production which require longer periods of time. A lesser advantage flowing from the privilege of exchanging future for present goods is that it enables us to substitute payment at a more favorable, for payment at a less favorable, time. Thus, a man starting on a new job has perhaps no surplus in his purse; a month later he will have

seventy-five dollars; an exchange which enables him to bring into the present the better provision of the future will surely give him an advantage.

Now, would these advantages continue to exist under socialism? Surely, yes. It might be that the second would cease to be effectual because the socialist state would refuse to make advances to imprudent or unfortunate citizens who wished to anticipate the provision of the future; but the need would certainly exist and so the possible benefit. As respects the supreme advantage derived from the possession of capital,—being able to choose more efficient methods of production—this certainly could not disappear save on the hypothesis that the whole order of physical relations was overturned and a new one established in which direct, immediate methods of labor were more efficient than those which utilize nature's powers. Of course no one anticipates any such revolution in the order of the physical universe, as a result of the establishment of socialism. Under that system, it would still be desirable, and even necessary to make tools before we made tables. Hence the power *to wait* would be just as necessary as under the present order. The privilege of exchanging future against present wealth would be of advantage to the governmental entrepreneur of the socialist system just as it is to the individualist enterpreneur of our system.

But, in the second place, is it at all likely that the other condition which is essential to give waiting power a value, namely, the scarcity of the supply, will disappear under socialism? In support of an affirmative answer, some one might say that the scarcity existing at present is artificial, and so would be sure to disappear when the only capitalist is the state. But this is manifestly unsound. There is scarcely any other part of the economic structure in which competition is so free as in the market for capital. An artificially controlled supply is quite out of the question. If the scarcity now existing is to disappear under socialism, this will have to be for some other reason. Can it be that capital will increase far

more rapidly under socialism than it does at present? Surely the contrary is to be anticipated. The absence of excessively large incomes will cut off one great source of capital; another will go with the removal of the necessity for saving on the part of the masses under a regime which assures every one a livelihood; finally, the direct turning back of income into business, on which socialism must almost entirely rely, will be much more difficult when all authority is in the hands of a democracy, eager for the present and reckless of the future.

It hardly seems necessary to carry this discussion further. We cannot doubt that under socialism the right to dispose of present goods, while paying for them in the future, the right to use waiting power, would have a marginal utility and would, therefore, have value. So, in every relation where implicit interest appears under the present regime, it would be certain to appear in the socialist bookkeeping.

But we have still to answer the question whether implicit interest would be present in the prices of goods *sold on the market*. For example, would the state find itself practically obliged to charge more for goods the production of which involved the use of large quantities of fixed capital than for goods which were almost entirely produced by current labor? Doubtless another policy could be conceived. While keeping its books soundly, the state might decide to sell some goods below cost—cost being interpreted to include interest on capital. But it could not pursue such a policy without unequal and unjust treatment of its citizens. For citizens would usually differ greatly in respect to the amounts they would consume of these goods which embody a large interest element. On the other hand, the burden of accumulating capital, which will enable society to secure the production of such goods, would fall on people generally. The only way to insure fair play, then, would be to raise the prices of those goods till they were high enough to put the burden of producing the goods entirely on those persons who consumed them

Accordingly, we conclude that interest in itself is a legitimate element in price,—that, supposing interest to be absorbed by the state as the sole capitalist, it is an entirely legitimate share in distribution.

2. The Legitimacy of Profits in the Abstract

Of all the regular economic incomes, profits would probably show greatest modification under a socialist regime. Yet even profits would doubtless appear in somewhat disguised form, and, hence, must be reckoned as a perfectly natural and legitimate source of income under the proper conditions. In support of this contention, little more need be said than to remind the reader of the points previously made with reference to this source of income. Profits, as popularly interpreted, include three elements: wages, interest, and profits proper. The wages element would of course persist under socialism. So also would the interest constituent, as we have just seen. What, then, as to pure profits,—the excess over ordinary interest received by the entrepreneur who turns over managerial functions to others?

That excess, we have argued, owes its origin to the burdens of taking the final responsibility in production. Of these burdens, the chief is the fear of loss, though, under the existing order, other psychological elements are doubtless present. Now, it seems quite certain that, in a socialist regime, this burden would be altered fundamentally in character, as also somewhat diminished in amount; but it would not be eliminated. At present the burden takes the form of a risk of never-to-be-compensated loss; and profits constitute the prize necessary to induce men to overcome their natural indisposition to assume the risk. But, under a system which concentrated all resources in the hands of a single owner, all risks would be pooled, and, therefore, would almost disappear *as risks,* being replaced by *the certainty of fairly regular losses.*

In other words, the socialist state would be obliged every

year to write off a considerable volume of losses. That is, some of its expenditure would have gone for naught. To make its books balance, this excess of expenditure would have to be charged against all, or some portion, of the products which resulted wherever industry was successful. Naturally the products chosen would be those of the industries where the losses had occurred. In no other way could we avoid burdening other citizens in the exclusive interest of those who consumed the products of riskful industries. We conclude, therefore, that profits constitute a legitimate, even necessary, element in an economic system,—being inevitable even in a socialist state.

3. The Legitimacy of Rent in the Abstract

Here an extended discussion is even less called for than under Profits. Rent inevitably emerges as the result of any process of natural value determination. It could not help existing under socialism. As soon as the best land, cultivated to the point of diminishing returns, proves unable to supply as much product as is demanded at some price above cost of production, price rises and in so doing creates a surplus over cost which under any regime is bound to be credited to the given piece of land. Being so credited, the land takes on value as the source of that surplus. If the surplus is large, the value is large. All this is inevitable under any rational system. The socialist state probably could not get rid of it by any action however arbitrary. This would apply, not merely to the bookkeeping of the state, but also to the system of market prices. For surely the socialist state could not have different prices for the same product in the same time and place, and it could not fix as the one price anything under the marginal cost of production; since, in so doing, it would discriminate in favor of the consumers of the particular commodity in question as against the rest of its citizens. But, if the state leaves prices to be fixed at marginal cost, it thereby permits rent to exist.

To conclude, then, interest, profits, and rent may undoubtedly be considered legitimate, supposing the state to be the sole capitalist, entrepreneur, and landlord. These shares correspond each to some portion of the output, which portion, on any rational system of valuation, is to be imputed to the productive factor involved. They would, therefore, exist, and ought to exist, if the present economic system were replaced by the co-operative commonwealth—only they would fall to the state and so would benefit all rather than the few.

Section C. The Legitimacy of Interest, Profits, and Rent as Sources of Private Income

Having ascertained that interest, profits and rent would be legitimate shares under a socialist regime, we come now to the last and most difficult part of our task. The real world as we know it is not governed on the socialistic plan, nor is it likely soon to be. Property is not owned and controlled by the state but by private individuals. Private individuals, therefore, assume the roles of capitalist, landlord and entrepreneur, connected with the ownership of property, and in these roles they receive the incomes originating in property, interest, rent and profits. Are the shares legitimate under these conditions? Is it right for individuals to receive them?

1. The Legitimacy of Private Interest

Those who affirm that there is something essentially wrong in permitting private persons to receive interest must maintain either (1) that it is essentially wrong to permit private persons to own capital, or (2) that, though right to permit private persons to own capital, it is essentially wrong to permit them to receive a net income from that capital.

The first of these alternatives surely need not delay us long. As against communism, a defense of the right even to *own* capital without deriving any income therefrom would be necessary; for communism holds that no ownership of

property is legitimate. But today communists are almost unknown. It is only with socialist arguments that we have to reckon; and socialists are constantly admitting both directly and indirectly that there is nothing inherently wrong in the private ownership of capital. Thus, they hold it right for private persons to own capital so long as the persons who do the owning are the laborers who use the capital for productive purposes. Further, they expect that under socialism individuals will be permitted to accumulate surpluses of general wealth, which today constitute the original form of all capital. Again, they constantly admit that, if the capitalist of today would be content to receive back what he puts into industry, relinquishing the surplus, no wrong would be committed.

But, even if the socialist should affirm that the private owning of capital is inherently wrong, he would find few to agree with him. Indeed, his assertion would be contraverted by his own fundamental ethical principle. For the fundamental ethical principle of socialism is that *each has a valid title to what he produces;* and, though men doubtless become owners of capital through fraud, corrupt practices, gift, inheritance, and other non-productive methods, yet it is equally certain that they may become, and do become, owners of capital by *producing* it. Hence on the very principles of socialism, men have a right to own capital.

We come then to the second alternative mentioned above: that it is essentially wrong to permit the owners of capital *to receive a net income* from that capital. This position, like the first, conflicts with the fundamental principle of socialism.

In the first place, the capitalist who really produces the capital which he is permitted to own is, to some degree, *a producer of the product* which emerges when his capital is productively employed. This follows from the socialist doctrine that the man who produces the capital produces the goods which the capital produces. But, secondly, since the cap-

italist who has really produced his capital is, to some extent anyhow, a producer of the product which emerges when his capital is employed, it follows that he has *a valid claim to some portion of that product;* since producing a thing is, by socialist principles, precisely the ground on which a valid title to that thing is based. In the third place, the capitalist not only has a valid claim on some portion of the product emerging from the employment of his capital, he has such a claim on *all that portion which can properly be credited to himself,* all which through his capital he has produced; for producing a commodity not only creates a valid title to that commodity, *it is also the only thing which does so,*—that is, the producer has a valid claim *on his whole product.* Hence the socialist assumption that the honest capitalist has a right to just so much of his product as will replace his capital,—no less and no more—is not at all what he seems to think it, an axiomatic truth needing no demonstration. *What the capitalist really has a right to, on socialist principles, is what he produces through his capital. If this is less than the amount needed to replace the capital, he has a right to less than enough to replace his capital; if it is more than enough, he has a right to more than enough.* Accordingly, the real crux of the matter is whether the capitalist produces through his capital *more than enough to replace it.* Has capital net productivity?

The general question whether capital yields a net product could conceivably be tested in either of two ways. First, in a very simple economic society, it would usually be possible to compare capitalistic and non-capitalistic methods with respect to their physical or *technical productivity;* we could compare the result obtained from a certain amount of labor spent getting product directly with the result obtained from an equal amount of labor spent getting product by the capitalistic method. In such circumstances, therefore, we could decide whether or not as a mere technical fact, the second or capitalistic method of using our labor gave just the same product as that labor would have given if used the other way,

or more, or less. Further, this would seem to mean that we should be able to decide whether capital just replaced itself, or gave more or less. A test of this kind, attempted in chapter XXIX, showed how capital under primitive conditions would produce enough to replace itself and something more.

But, now, admitting that such a test would be adequate for primitive conditions, it certainly is not so under a developed economic order. It could be utilized only in the rarest cases, and this for two reasons. First, speaking generally, the same kind of labor could not be employed indifferently (1) in producing a certain commodity without capital, (2)in making capital, and (3) in using capital. Men do not, could not, shift from one kind of these productive activities to another. In consequence, a direct comparison of the two plans of procedure, in respect to the labor expended, is out of the question. Secondly, the co-operative character of most productive processes in the present order often makes it impossible to distinguish a *technical product* for each of the different factors involved, in other words, compels us to be satisfied with trying to ascertain *the significance* or importance of each factor.

We are driven, then, to resort to a second test, namely, *the presence or absence of an index* of productivity in money values. We compare the money value of the cost goods utilized in production and the money value of the product, as these money values are determined under free competition; and, if a surplus is disclosed, we say that capital has net or surplus productivity. Manifestly, it is possible to apply this test. But is it a valid test? Is the existence of a value surplus an unfailing index of the existence of a product or utility surplus? If we accept the doctrine taught in Chapter XX that prices necessarily tend to express marginal significances or utilities, we must certainly answer in the affirmative. Assuming competition among capitalists, the existence of a surplus value in product over costs other than waiting power proves that capital is economically responsible for a surplus prod-

uct, that is, a product in excess of the amount necessary to replace itself.

The argument for this contention has already been fully covered in Chapter XXIX. We will add here only this much; if the natural working of the laws of price cannot be trusted to define the real share of capital—waiting power—in production, the proposition assumed by the socialists that capital so far produces as to replace itself has no more warrant than our contention that it produces *more* than enough to replace itself. For, if money values do not supply a trustworthy index of contribution, if the quantity of product which is credited to capital through money values may be too large by the amount of the surplus, it may be too large by twice or thrice this much. We have no method whatever of proving that capital produces enough to replace itself any more than we have of proving that it produces enough to replace itself and pay 6 % also. In fact, we can go still further, and say that, if the money values which emerge under free competition cannot be accepted as trustworthy indices of contribution to product, we cannot be sure but that capital produces not merely a beggarly 6% surplus; it may in fact produce a surplus large enough to cover the whole product.

Thus we see that it is not possible to maintain either (1) that it is essentially wrong for private persons to *own* capital, or (2) that it is essentially wrong for them to receive a net income from capital. There is, therefore, nothing essentially wrong or illegitimate in private interest.

2. The Legitimacy of Private Profits

There are no doubt many cases of profits which it would be difficult to defend. But profits in general, a return to the person who assumes the responsibility of co-operative production, is too plainly reasonable to merit serious discussion. Such persons are producers in the sense that they supply a condition essential to the result. They are producers in the

sense that to them some portion of the joint product is actually imputed, as proved by the fact that they get profits. (Compare the argument for interest above.) But, if profits roughly correspond to a product of the entrepreneur, they surely can not be condemned as inherently wicked. Even the medieval theologians, who sweepingly condemned all forms of interest-taking, permitted the taking of profits by those who accepted the full responsibilities and risks of an enterprise.

3. The Legitimacy of Private Rent

Among the several private shares into which the social income is divided, rent has always been the one most seriously called in question. This does not mean that professional economists have doubted that the existence of this share is inevitable. The only controversy has concerned the propriety of letting this share go to the persons who now receive it. For the position which economists have only recently come to take with respect to interest,—that it is a natural and inevitable element in any economic order,—was quite early taken with respect to rent. We can shift the destination of rent, but we cannot destroy it. Rent, as an advantage derived from land and enjoyed by some person or persons to the exclusion of other persons, save in so far as it is arbitrarily redistributed,—rent in this sense cannot help existing. Again, the doubt as to the present destination of rent does not rest upon any doubt as to the productivity of the land from which rent is received,—the word "productivity" being used with the meaning given to it in this text. Every one admits that a portion of the product obtained from an industrial combination which utilizes a rent-bearing piece of land is automatically credited to that piece of land by the working of the laws of price. Accordingly, on the basis of the ordinary doctrine with respect to the validity of any economic claim, it follows that, if any man or body of men has a valid right to own the land, such man or body of men has the right to receive the rent which is the

product of that land. The crux of the whole matter therefore is this: *Can private persons acquire a valid title to land?*

We admit at once that it is more difficult to justify private ownership of land than that of capital. The fact that land is not, to any considerable degree, a produced good in the ordinary acceptation of terms, shuts us out in the first instance from appealing to the common ethical doctrine that a man has a valid title to what he produces.* Doubtless special cases arise in which moral sentiment would recognize some service of discovery and appropriation as sufficiently fulfilling the requisite of productive action to create a title. But, broadly speaking, land is not a result of economic production. If, then, a valid title can be derived only from production, there can be no valid title to land either for the individual or for the state.

But production is not the only adequate basis of a valid title. If it were, economic co-operation through exchange, would be impossible; no man could devote himself to producing one thing, depending on exchange with other persons to supply him with other things. At present, such a procedure is possible, because everybody recognizes that, *in so far as the validity of a man's title to property rests on his own action, exchange, carried out in good faith, gives just as valid a title as does production.***

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* In utilizing as an ethical basis for our discussion the common doctrine that production gives a valid claim to goods, I do not wish to be understood as holding either (1) that said doctrine is unqualifiedly true, or (2) that there is no other valid basis for a property right in things. On the contrary, I hold that law can rightfully maintain any system of property rights which is found most conducive to the welfare of society. It seems best, however, in meeting popular objections to the existing order, to argue, in so far as this is possible, on the basis of such fundamental principles as are accepted by people generally.

** In so far, remember, as the goodness of his title depends on himself.

The farmer who trades a hundred bushels of grain which he has produced for a horse, has now just as good a title to the horse as he did have to the grain; and, if he should now trade the horse for a second hand automobile, he would have just as good a title to the automobile as he did have to the grain. But, in communities two or three generations old which maintain free trade in land, practically all the landholders have acquired their landed properties through exchange. It follows, therefore, that they have, generally speaking, quite as good titles to those properties as they do to the horses, automobiles, etc., which they have obtained through exchange.

But some may object that exchange cannot give a valid title to anything *unless the seller himself has one and, besides, has the right to transfer his title.* And the seller has no such title or right in connection with land, for (1) ordinarily the actual private owners of land have purchased from *other private* owners, and we can not assume that the titles of these previous owners are valid, since this would beg the whole question of the validity of private titles to land; and (2), if we try to meet this difficulty by harking back to grants by the state—the only natural or artificial person who can claim a valid title,—we have to assume that said state has a right to *relinquish* its title, to alienate its property. And this assumption, some insist, is quite unwarranted, in that the state's title is that of a trustee acting for society as a whole or for men generally.

The pith of this objection is contained in the second part; for, if the original title derived from the state were good, the *number* of subsequent exchanges whether one or one hundred would have no bearing on the matter. The decisive question, then, is this: Is it reasonable to claim with the followers of Henry George that the state could never rightfully alienate its property in land? Surely in this age there can be but one answer. The state as the final authority can do whatever it believes to be for the highest welfare of society. It has

the right to alienate its property in land when this seems to be the right course, and it has equally the right to resume such property when that course comes to be recognized as the right one. In a word, the social welfare, as interpreted by the highest human authority—the state—is the supreme law, the supreme right. If a man has done his part toward gaining a valid title to land through exchange, he need not give himself anxiety lest the original grant of the state was invalid.

We have thus, in the foregoing discussion, defended the general validity of private rent, on the ground that private land owners have gained their titles through exchange. But the same facts can be interpreted in a different way, and when so interpreted, furnish an even better defense of private rent. When a man uses $2,000 to buy a piece of ground yielding a net income of $100, he in effect transforms that land into capital and its income into interest. Now, I do not admit that he literally makes capital of the land or interest of the rent. The land is still a different thing from typical capital; and, in some very important relations, will continue to behave differently and, therefore, will need to be *recognized* as different. But, for our present needs, land *in effect* becomes capital. For our present needs, the real problem is this: What is the nature and origin of the $100 income derived from the given piece of land,—*said income being looked at from the standpoint of the man who buys the land in order to get the income.*

From the standpoint named, this income is interest. If there were no such thing as interest, if the rate were zero, this income *as a net income,* would not exist. It is, indeed, true that the $100 would still be received by the landowner each year; but what would that mean as compared with what actually happens now? Under the present system, he gets $100 each year for an indefinitely extended series of years; but, instead of having been obliged to pay for each of these $100's an exactly equal number of times $100, he actually

had to pay for it only twenty times $100, i. e., $2,000. If, however, there were no such thing as interest, though he would still get the $100 each year, he would have been obliged to pay for each of these $100 an exactly equal amount, he would have been obliged to pay for the right to receive $100 every year for fifty years, fifty times $100, or $5,000; for that right covering 100 years, one hundred times $100, or $10,000; for that right covering 200 years two hundred times $100, or $20,000; for that right covering an indefinite period of years, an indefinite number of times $100. In short, he would get no clear income from the land, but, instead, would get back in an indefinite series of annual installments, exactly what he had put into the land in one lump sum.

Manifestly, then, from the standpoint of a landowner who has bought a piece of land, the rent of the land is in effect interest. It follows that, if interest, as a type of income going to private persons, is legitimate, rent is also.

But there is one more objection to be met. The critic of the present order may observe that, though, in the course of the transaction by which land changes ownership, rent is transformed into interest, this is only a temporary phenomenon. That transformation is effected because *the value of the land adjusts itself to an income determined, not by the natural laws which govern interest, but by those which govern rent.* This process of adjustment for the moment establishes a ratio between land value and land income exactly the same as that which prevails between capital value and capital income. But, then, this does not really make rent into interest, nor bring it under the dominion of the natural laws which govern interest. The very next day, something may happen to double, let us say, the income from the site, therefore to double its value, and so to give to the owner of the land an income and a property to which he could lay no valid claim, whether we base such claims on production or exchange.

This objection to the legitimacy of private rent sounds plausible; but it is not, after all, difficult to answer. Just as

an unchanging rent derived from a purchased piece of land is in effect interest, so an increase in rent derived from such a piece of land is in effect *profits*. In very fact it *is* profits. For, in accepting the responsibility of owning the piece of land, a man exposes himself to that risk which accompanies all ownership, the risk of seeing his property fall off in income and so in value. To induce men to assume this risk, it is necessary that there should also be present the chance of unexpected increase in income and value. When an unexpected increase comes, no new designation is needed for it; it is simply profits. If, therefore, profits in general constitute a legitimate source of income for private persons, there is nothing inherently wrong in the so-called unearned increment of rents and land values.

It is not intended to leave the impression that the legitimacy of private land ownership is as clear and certain as that of some other types of ownership. Wherever the element of chance, or accident, plays a very great role, there is much to be said in favor of public ownership. While speculation performs a real economic function, it is in many respects hurtful and demoralizing. A socialist state would need it much less than does the present order, in that the pooling of all industries would greatly diminish the risk element. Even going no further than to assume the control of land would do much to diminish risk and its attendant evils. But, whether private or public ownership will in the end prove best, of this there can be no doubt: *there is nothing inherently wrong in the private ownership of land and the private receiving of rent.*

Section D. **Further Modifying Conditions of Actual Life**

Let us pause a moment now to take note of our position. In Section A we argued for the abstract legitimacy of the present principle of distribution. In Section B we showed that it would be legitimate in a socialistic state. In the section

just concluded, we took up the task of ascertaining whether the principle can also be considered legitimate under the imperfect conditions of real life; and we have already observed its relation to one of the most important conditions, namely, private ownership.

In making a truly complete critique of the existing order, we should be compelled to test the legitimacy of our service-value principle in the presence of many other modifying conditions. To carry out this test, however, would carry us far beyond the scope of the present volume. We shall therefore content ourselves with mentioning some of the conditions, without attempting more than the briefest comment.

1. In Section C we merely attempted to argue for the general, abstract legitimacy of interest, profits, and rent as private shares, *having no regard to the weaknesses of human nature.* Taking those well known weaknesses into account, can the shares named still legitimately go to private persons? We recognize this question as a really serious one. We see much force in the contention that, however reasonable it may be on general principles to permit the private ownership of capital and land and the private undertaking of industry, the evils which inevitably result from such a policy in the actual working of things make its continuance impossible of justification. Still, in view of the great superiority, in other respects, of private, to public, ownership, and in view of the fact that its worst evils can be gradually removed without overturning the system, we believe that the system of private ownership should be maintained. At the same time, however, regulation of private initiative should undoubtedly be carried much further than it has been, limitations of the property right should be increased, and at some points, how many and what only experience will show, *public ownership and initiative should be substituted for private.*

2. A second supplemental question of much importance is whether the present system is justified in permitting private individuals to acquire possessions through *inheritance* or *be-*

quest. Personally, I am disposed to answer this question in the affirmative but only with very emphatic qualifications. I would greatly reduce these rights both directly by legislation and indirectly by a taxation which, for the excess of larger estates over a certain minimum, would amount to practical confiscation.

3. Still another question is whether law should permit private persons to enjoy the extraordinary profits which flow from the exploitation of *natural resources, public franchises,* consolidations, etc. We can only say in this limited space that such permission is of doubtful justice, and should at least be carefully guarded.

4. Finally, how far can society afford to modify the primary distribution of property and income *through a secondary distribution effected by taxation?* It would seem plain that, if the dominance of the present principle of distribution—to each in accord with the value of his service—is necessary to insure the proper conduct of economic affairs, we should spoil everything by arbitrarily contravening the working of that principle, *even though we do this after distribution in accord with the principle has once been effected.* For what interest would a man have in earning ten times as much as his fellows, if he is to be reduced to their level by taxation? Doubtless, if it were to go so far as this, he would have *no* interest in seeking the better income. But, on the other hand, there can be no doubt that a tax much heavier than that levied on his poorer neighbor would not influence in any material degree his economic efficiency. The whole problem is one of degrees. Its solution probably can be reached only through experiment, and for that we shall have to wait.

Conclusion

We thus come at last to the end of the long discussion which has occupied the whole of this chapter and most of the one preceding. The purpose of these chapters has been to enquire whether the present economic order is a reasona-

bly good one from the standpoint of distribution. With all the facts before us, what decision may we pronounce? It may be doubtful whether we are justified in pronouncing any of a really final and unqualified sort; but if we do pronounce one it seemingly must be on the whole favorable.

Certainly the present system is not all that social minded men could desire; yet just as certainly it results in much that *is* desirable, and in much that could probably be realized under no other system. While it may require some change in details, one's reluctance to change it in fundamentals grows in exact proportion to his knowledge of the facts. Indeed, if one were to conceive of himself as a dictator in a collectivist state with power to replace the present regulative mechanism with one quite different, it is not unlikely that,—assuming his intentions to be really benevolent—he would choose to retain the present system. For he would see many reasons for believing that, with all its defects, it not only has many good and redeeming points, but that it is, on the whole, the very best one possible.

CHAPTER XXXV

CRITIQUE OF THE PROCESS WHEREBY PRODUCTION IS REGULATED

The chief characteristics which we can reasonably require in a productive system are: (1) that the *right things* shall be produced; (2) that the *quantity* of product shall be reasonably *large;* (3) that the *quality* of product shall be reasonably *good;* and (4) that these results shall be realized as *continuously* as possible,—in other words, that production as a whole shall be as free as possible from marked irregularities.

In the present chapter we take up the first of these requirements,—*that the right thing shall be produced, or* **The Regulation of Production.**

It has by this time become a commonplace that, under the present order, the selection of what shall be produced is almost entirely effected through freely-determined prices. Now, as the earlier economists taught, if the present system could realize fully the conditions which are assumed as fundamental to it, this regulative mechanism would probably be an almost perfect one. The spontaneous working of free competition would result in prices which would insure production of the things called for by the general advantage,—the things which a wise dictator dealing with the same conditions would think it expedient to produce. Further, the earlier economists commonly believed that, even under the conditions actually existing, price-guided production *in the main,* worked out results as near the ideal as could reasonably be expected.

In our day, this opinion is probably still held by the majority of economists. But a not inconsiderable minority take radical ground on the other side. A few even insist in unqualified terms that there is no truth whatever in the older doctrine, that there is not even a tendency for production to

follow the channels which social or general advantage would dictate. In view of this disagreement, a careful and rather full treatment of the matter seems called for. We ask, then: Do the principles governing price promise to secure a reasonable guidance of productive activity? In answering this question, we will first comment briefly on the standard to be set up in judging whether a particular guidance of production is reasonable; after which we will pass in review the leading principles of price, and try to determine the fitness of each to meet this test.

1. What Is a Reasonable Regulation of Production

The answer to this question has already been made in introducing our critique of Distribution in Chapter XXXIII. The general object of an economic order of any kind is to secure the satisfaction of human wants in so far as this depends on economic goods. Just what wants shall be included under this general category, and the comparative order of their importance as between different persons, are determined by the system of distribution. It follows that production, like all other economic processes should be so regulated as to correspond to the system of distribution,—to provide for the satisfaction of wants according to the scale which is in effect embodied in the system of distribution. This means that, broadly speaking, no wants are recognized as social wants except those of persons having incomes under the existing system of distribution, and that the wants of different persons have a social importance corresponding to the size of their incomes. Finally, it means that the general demand schedules made up of the different individual demand schedules, composite as they are, express the social importances of wants.

The objection to this method of rating wants that it does not rate them according to their real or absolute magnitude, has been answered directly or by implication in the argument for the general reasonableness of the present system. The *social* magnitude of wants is the only one in which society at

large is interested; and the social magnitude of wants is *by no means identical with their absolute magnitude*. At this moment, the wants of a French private may have as great absolute magnitude as those of Marshal Foch; but, quite obviously, they have much less social magnitude.

Another and somewhat more serious objection to the doctrine before us is that, taken as a whole, it involves circular reasoning. On the one hand, letting ordinary demand prices—mere composites of heterogeneous individual schedules—represent the social importance of wants is said to be legitimate, because this is the necessary complement of the system of distribution. On the other hand, the system of distribution is said to be legitimate, because it gives each person what his services are worth as indicated by the general demand schedule. The system of distribution establishes the legitimacy of the demand schedules; the demand schedules establish the legitimacy of the system of distribution."

Now, this sounds plausible; but it will not, after all, bear examination. It would be true only on condition that all large incomes were obtained by catering to the demand of persons of large incomes only. We should then be defending the power of a particular group of persons to influence unduly the course of production, on the ground that this was the necessary complement of a system of distribution which gave persons of that group large incomes because those persons supplied services which were accounted very important because persons of that same group, having large incomes, were able to rate those services highly. But I hardly need say that no such relation exists between large incomes and their source. The great majority of persons in receipt of large incomes get those incomes from industries which cater, not to the demands of large-income persons only, but rather to the demands of all classes. The circularity complained of is not, therefore, *characteristic* of the accepted reasoning, but only of special cases to which that reasoning may be applied.

In order to emphasize the entire course of reasoning on

this matter let us recapitulate it in a series of propositions as follows:

(1) The kind of importance in respect to wants with which society is really concerned and which, in the interest of the social welfare, should be treated as the proper guide of economic action is **social** importance. If this is not identical with individual or absolute importance, the latter must yield.

(2) The social importance of the wants of different individuals depends, not primarily on the absolute magnitude of those wants, but on the relative importance of the different *social ends* the attainment of which may be *conditioned* on the satisfying of those wants, and the degree to which their attainment is so conditioned.

(3) One important way in which the attainment of social ends is conditioned on the satisfying of individual wants is found in the fact that the *getting of efficient service* from individuals is dependent on providing for the satisfaction of their wants in certain proportions. If we do not provide for their wants in these proportions, we do not get the service called for.

(4) On account of the great inequalities in human capacity and the consequent inequalities in the importance of the services different men can render, it is practically indispensable that this satisfying of their wants on which their efficient service is conditioned, should have some *reference to the importance of those services,* and so this *satisfying of wants should be unequal* as between different persons.

(5) Under the present system, society elects to attain the end by making the *money incomes of different individuals unequal* and roughly adjusted to the importance of their services,—leaving those individuals themselves to put a rating on the relative importance of wants.

(6) In doing this, *society necessarily recognizes these individual ratings of the importance of wants as social ratings, expressing the true, though indirect, social importance of those wants.*

(7) It thus follows that, broadly speaking, the *demand prices* of the ordinary demand schedules are, in a very real sense, *expressions of the social importance of the wants involved.*

Having so roundly emphasized the point that the demand schedules resulting under the existing system of distribution represent broadly comparative social wants, let me once more remind the reader that this must be qualified if it is to be an entirely true account of the matter. At several points, other indices of the true social importance of wants are needed. The state must find other criteria when the wants of the group as a whole come into conflict with those of individuals; when the needs of future generations conflict with those of the present; and when the most fundamental needs of many individuals are opposed to the trifling needs of the few. In short, the general position here taken, that we must accept the demand prices of individuals as indices of social importance is in general perfectly sound; but, as in other cases, it is not always valid: these indices must at times give place to others better adapted for the particular case in hand.

2. Single Price and Production

Having now so definite a criterion as to what constitutes a proper regulation of production, our review of the different laws of price which participate in this process ought to prove a relatively easy task. First, then, we ask: Is the law of single price a suitable element in the mechanism which has the function of regulating economic production? The answer is surely an affirmative one. First, it is manifest on a little reflection that singleness of price is necessary to the realization of the system of distribution authorized by society. If incomes were equal, while the same goods had different prices, the equality of incomes would be defeated by indirection. One man could not get as much real income as another man though their money incomes were equal. On the other hand, if so-

ciety decrees inequality of income, singleness of price is necessary both from the standpoint of the man of small income and from that of the man of large income. If prices were lower to the rich man this would increase the inequality, make it greater than the social intention. If prices were higher to the rich man this would neutralize the superiority of his income.

But there is another reason and if anything a more fundamental one why the law of single price is a proper element in the system guiding production. It is logically essential to having price act as a guide at all. Guidance, like sovereignty, must be indivisible. *One* price for each product or each factor can guide us in the production of that product or the use of that factor; but *many* prices for each could not guide at all. Thus, if the relation of supply and demand are such that common sand is at the margin worth 50c while moulding sand is worth $1.00, these prices can perform their function in showing us that common sand can properly be put to uses as low as fifty cents while moulding sand must be reserved for uses rated as high as one dollar, *only on condition that* **the one price** *of common sand is fifty cents and* **the one price** *of moulding sand is one dollar.* If at the same time common sand has prices of fifty cents, seventy-five cents, one dollar, one dollar and a quarter, one dollar and fifty, and so on, we should have no guidance whatever from this source,—prices would have no significance as respects the importance of the things involved.

3. Demand Prices and Production

We have seen that the law of single price constitutes not only a legitimate, but also a necessary, element in an economic order which entrusts the regulation of production to freely determined prices. What now is to be said of those principles which impute to demand prices and the forces behind them, significance, utility, a share in the fixing of actual prices, and therefore in the regulation of production? Do these consti-

tute a legitimate element in the regulative mechanism? Is it reasonable that actual prices which approximately equal demand prices, and approximately express marginal utilities or significances should participate in the guidance of production?

In giving an affirmative answer, the majority of economists have probably had in mind the analogy of the individual guiding his own economic life in accord with his individual demand schedules. With respect to the reasonableness of his conduct in doing this, there has been no serious difference of opinion. Those schedules consist of money expressions of utility or significance for different commodities. These money expressions are fairly accurate indices of the *comparative* importance to the individual of the utilities in question, and so of the goods which yield the utilities. And the function of such money expressions of utilities or significance is to guide the individual in the rational utilization of his income or resources from which to secure an income. Speaking broadly, *each person should, as far as possible, employ his income or capacities for securing income in such a way that the marginal utilities of all goods secured should be equal; and, when this is not possible, should employ said income or capacities in such a way that utilities or significances of higher rank should never be sacrificed for utilities or significances of lower rank.* The practical wisdom of such a rule of conduct is plain, for it surely is the part of good sense to provide for the satisfaction of our wants in proportion to their importance.

Is there a true analogy between this case of the individual and that of society as a whole? Is there a rule analogous to that just laid down for the individual which can reasonably be applied to society as a whole? Is it reasonable that we should, generally speaking, so use our resources that marginal utilities, as these appear to be when judged by the general demand schedules, shall be substantially equal all along the line? That such a rule for society at large *actually obtains is evident enough.* That is, society's use of its income or income-

bearing resources is in fact guided by the market demand schedules which were studied in earlier chapters. Through the guidance of these schedules, resources are so employed that the marginal want satisfied in any one of many different lines is equal,—when measured by the persons interested, in a unit which is at least nominally the same,—to the marginal want satisfied in any other of those different lines. In other words, if we recognize demand prices as a true index of the size of wants, then $1's worth of resources are used to satisfy what seem to be $1 wants, not 50 cent wants nor $2 wants. But, while such a rule does obtain for society in general, the question remains whether this rule can be interpreted and justified as the analogous rule is in the case of the individual. Are these demand prices of the general demand schedules a true index of the real social magnitude of wants? Do they express *comparative social or general importances* in anything like the same way that the demand prices of the individual schedule express comparative individual importances? If they do,—and only if they do—we may say that the guidance of production effected through them in a rough way secures the gratification of wants in proportion to their importance, and is, therefore, a reasonable one.

This question has already been answered in the affirmative on page 255. Given a system of distribution approved by society (and a system of distribution cannot exist without this approval), the general demand schedules are *social* schedules, schedules representing *social significances* or *importances, as these are determined by the vast complex of conditions which at any moment prevails.* To this broad statement, there are several qualifications, as already brought out; but the statement is, after all, substantially true. The objection, that, on account of the different meanings of the money measure to different persons, the prices of the general demand schedule do not represent the absolute magnitude of wants, has already been sufficiently well answered. The reasonable, the proper, guide to the use of the resources belonging to a social group is *not the abso-*

lute magnitude of wants *but their social magnitude*. Production should be so guided as to secure the greatest social, not individual, advantage. We are not, therefore, concerned with absolute magnitudes.

If the objection is to be interpreted as really directed against the use of *the term* "utility" and *the phrase* "maginal utility" in this connection, the matter, like other verbal controversies, is not of great moment. The general point, however, is important. In accepting the guidance of ordinary demand schedules in the use of its resources, society, broadly speaking, *insures that those resources shall be used in a way which provides for the satisfying of wants in proportion to their social significance.*

4. Cost-Determined Price and Production

Among the most important of the principles through which prices are determined are those which affirm some kind or degree of causal connection between price and cost of production. Broadly speaking, in most cases prices have to equal marginal cost of production; or, anyhow, the prices of different goods have to show *the same ratios* as their costs of production. A commodity costing twice as much as some other commodity must have a price approximately twice as high. Is such a principle as this a suitable element in the mechanism which regulates production? Does it tend to insure that our resources shall be most wisely utilized?

Here, again, the answer is certainly an affirmative one. Prices which have the regulating of production, which are called on to utilize our resources to the best advantage, can do this only on condition that they are, generally speaking, coincident with marginal cost. Correct prices, prices fitted to guide production rightly, must be adjusted, not only to demand prices and the forces behind them, but also to supply prices. If the price of any particular commodity, as compared with those of other commodities, was higher than its cost, this could

be only because that price was being held up by a marginal significance or utility abnormally high as compared with that of other commodities having the same cost. But, since it is our business so to use our productive resources that a given unit of those resources yields equal or almost equal marginal utilities all along the line, the abnormally high marginal utility of our special commodity would mean that too little of our resources was being used in the production of that commodity, too much in the production of other commodities. On the other hand, if the price of any particular commodity, as compared with those of other commodities, was below its cost of production, this could be only because that price was being held down by a marginal significance or utility which was abnormally low as compared with that of other commodities having the same cost. But, in view of our rule of equal marginal utilities, this abnormally low marginal utility of our special commodity would mean that too much of our resources was being used in its production, too little in the production of other commodities.

CHAPTER XXXVI

CRITIQUE OF PRODUCTION IN RESPECT TO EFFICIENCY

In beginning the last chapter we said that a satisfactory economic order might reasonably be expected to produce the right things, to produce them in large quantity, to produce them of excellent quality, and to produce them without marked irregularities. We have thus far seen that the existing order, governed as it is by the laws of price, meets the first of these conditions—the production of the right things—reasonably well. It is the task of the present chapter to make a similar, though briefer, test of the three remaining conditions.

1. The Present Order and a Large Volume of Products

To the question whether the present order is fitted to make the volume of products large, almost all students of our subpect give a favorable answer. In general, abundance of products must depend chiefly on three conditions: (1) a large volume of productive factors, (2) high efficiency in those factors, and (3) most profitable utilizing of those factors. Let us consider these in order.

As respects the volume of resources, no system can alter this as far as it depends upon nature. But the factors dependent on human choice,—all forms of labor, waiting, and initiative or responsibility-taking,—may be supplied in small or in large volume according to conditions. As regards the second and third, the present order promises to do much better than any substitute ever seriously considered. A large volume of capital, which is the sole condition for an abundant supply of waiting power and the principal one for an abundant supply of initiative, is surely more likely to be realized

under the present order than under socialism. With the present order, the accumulation of capital is left to private initiative, and a reward offered, in the shape of interest and profits, makes possible the attaining of a competency with its freedom from labor. Under socialism, private capital, anyhow private interest and profits, would be eliminated. Society would, therefore, have to depend on something akin to taxation as a means for accumulating capital. But in a democratic state, with inequalities of income eliminated or much reduced, it is hard to believe that capital could be largely accumulated by such a method.

Turning to the labor factor, we must admit that a socialistic order would show less difference; but it would after all give smaller resources than the present order. One of the leading aims of socialism is to diminish individual responsibility in economic things. It does not, indeed, plan to go as far as communism, treating all members of the community as if they were members of one common family,—insuring them a livelihood anyhow. But it does propose to go a long way in this direction, — to insure every one a job and a so-called living wage,—to relieve every one of much of the anxiety which characterizes the present order. Now, this may be on the whole very desirable; but it can scarcely fail to reduce the energy, industry, alertness, and prudence, which men bring to their tasks under the present order where the livelihood and the economic position of each individual is conditioned on the contribution he makes to the supposed welfare of his fellows.

What has been said concerning the volume of the factors available applies in considerable measure to their *efficiency*. That feature of the present order which makes the share of each person dependent on his contribution as measured by others, stimulates him—assuming free competition—to raise the efficiency of the factor in his control as high as possible, in other words, to furnish efficient services. Finally, the system of private initiative probably promises to give greater

efficiency in the *utilization* of the factors; though it is doubtless true that governmental action can contribute much at this point, particularly by the discovery of better methods in industries where private initiative seems backward. In general, then, we may conclude that under the present order all the necessary conditions are fulfilled for securing a large volume of products.

The above verdict is concurred in by almost all economists. Yet perhaps a moment should be given to the opposing contention or certain critics that the present order is not productively successful. In support of this idea they bring forward three considerations chiefly: the wastes of competition, the idleness of the parasitic classes, and the sacrifice of utility to value.

The first of these points is easily answered. There are undoubtedly wastes in a system of free private initiative,—though their amount is grossly exaggerated,—but, in the opinion of the economist, *this so-called waste is merely the cost of a rarely efficient initiative, and a low cost at that.* For all students of business organization agree that the monopolistic and quasi-monopolistic business units are much less efficiently organized today than are the units exposed to free competition.

Again, we cannot take more seriously the talk about the wasted productive capacities of the parasitic classes. To start with, their number is extremely small. A large proportion of the persons often designated as parasites are in fact performing functions essential to high productive efficiency. In the second place, it seems certain that, if they all were to become producers in the socialist sense, the amount they would add to the income of each person would be scarcely appreciable.

Finally, the third objection of the socialist seems to economists to be a serious error. There is no doubt the possibility of a contradiction between utility and value. One who is seeking only to increase values may find himself in a posi-

tion where he would better diminish output and so diminish utilities; and, since the immediate return to producers is a value return, (purchasing power in the form of money) rather than a utility one, it naturally follows that producers may at times gain most by reducing, or at least checking, the increase of utilities. But the pursuit of such a policy is possible only *through concert of action among producers;* since values can be increased by limiting output, only provided it is the *total* output which is thus limited, not merely that of *some* producers. *But concert of action among producers is in contradiction to the very essence of the present order* of which untrammeled private initiative is the dominant feature. Accordingly, it is quite illegitimate to represent this order as one in which producers will inevitably seek to increase values to the neglect, or even the destruction, of utilities. Increase of values is doubtless the natural goal of the producer as producer; but, under a regime of free competition, *the only path by which that goal, generally speaking, can be attained is the increase of utilities.**

2. The Present Order and Qualitative Excellence in Products

The third requisite of an effective regulative mechanism for an economic order is fitness to insure that products should be of high quality as well as abundant in quantity. Is this requisite likely to be present in a regulative mechanism which consists of freely determined prices? At this point, it seems to

* The last objection is perhaps given too little weight in view of the present trade-union policy of encouraging or requiring the limitation of output,—a policy which would probably be less pronounced under socialism than it is today. Doubtless the diminution or disappearace of the open approval of soldiering would tend to result in a considerable increase in output. On the whole, however, I believe that this would be more than offset in a socialist order by the diminution in motive for effort due to the much less rigid connection between wage received and service rendered.

me, our verdict cannot be so favorable. Doubtless the discriminating demands of buyers will secure high quality in some few products, through the natural competition of producers. But with the majority of products this rule will not apply. Unless government steps in to supplement the control effected by freely-determined prices, we almost everywhere meet with adulteration, poor materials, bad workmanship, etc. This might be remedied if buyers became more alert, better-informed, and more insistent with regard to their rights. But the likelihood of any such change is very remote. At many points buyers would find great difficulty fitting themselves to guard their interests even were they disposed to take the trouble; at some others they are pretty likely to be misled despite their efforts. Much evil may thus result both to individuals and the community; so we cannot afford to leave regulation to the working of spontaneous forces. It should be added, however, that the partial failure of price control in this respect does not constitute a very serious defect in the present order, because the needed supplemental action of government is comparatively easy to work out, as has been shown by the experience of the last sixty years in England.

3. The Present Order and Continuity of Production

An economic order in which the regulative mechanism was efficiently operative for short periods only,—being every now and then completely thrown out of gear so that a highly disordered state of things ensued,—would be considered by every one seriously defective, if not almost unendurable. An economic order to be really satisfactory, ought to show steadiness, regularity, dependableness,—ought to be free from all marked perturbations. Now in this respect, our system unfortunately does not work so well as we might desire. It is a familiar fact that production is subject to marked, almost violent, fluctuations, which naturally group themselves into the so-called industrial cycle; depression, recovery, increasing

activity, normal activity, over-trading, crisis, collapse, depression, and so around again. The claim of the socialist that public initiative would almost, if not quite, eliminate this sort of thing is without doubt a fairly reasonable one. At all events, socialism would be certain to work better at this point than does the present system. The fact, however, is that the industrial cycle, in its serious forms, is a comparatively modern disease, little more than a century old; and much has already been done by our system to bring it under control. America, for reasons easy to trace, is still much subject to attack. But England, the original home of great panics, has had no serious crisis since 1866. In short, the leaders of industry are learning to control things sufficiently to safeguard this trouble or to palliate greatly its evils. Accordingly, while the present order cannot be cleared of blame, we would surely be unjustified at the present time in pronouncing a final verdict against it on account of the defect in question.

Conclusion

We set out upon this discussion by asking whether the principle of price regulation works out reasonably satisfactory results in respect to production. What answer may we draw from the facts presented above? We may, and apparently are compelled, to draw an affirmative answer—an affirmative qualified, but still an affirmative. The principle is perhaps below the best one conceivable. Nevertheless, while great improvements are needed, are possible, and ought to be effected, we must still hold that a verdict for the substantial soundness of the principle is practically inevitable. Again we may say, as we did at the close of our critique of distribution, that a thoroughly humane despot with power to substitute any other principle thus far proposed, might very probably—if he took all the facts into consideration—decide that the principle now operative was on the whole the very best one possible.

CHAPTER XXXVII

CRITIQUE OF CONSUMPTION

In concluding our study, let us consider for a moment the satisfactoriness of the present order with respect to Consumption. Consumption, sometimes treated as one of the main divisions of Economics, co-ordinate with production, exchange and distribution, has for various reasons been given little prominence in this volume. Nevertheless, our critique of the present order ought not to end without a brief comment on the way in which the price regulative feature affects consumption—the use which is made of wealth—and without some attempt to determine whether the result is satisfactory or the reverse.

As respects the regulation of consumption, a satisfactory system needs to show three results chiefly: (1) Those natural resources which belong to society as a whole and to posterity must not be sacrificed to the selfish greed of the individual and the present; (2) The satisfaction of immediate wants must not absorb all our producing efforts to the neglect of that building of capital on which great productive efficiency depends; and (3) The best utilization of a stock of consumption products already existing should be assured.

The first of these demands, we must admit at once, is very imperfectly provided for in the present order. Under the free working of private initiative, the vast resources of a continent in lumber, coal, iron, etc., are being rapidly dissipated, and that in too large measure for the benefit of very small classes. Even the race itself has been threatened with serious deterioration through an unbridled use of liberty in the employment of women and children; so that everywhere governmental interference has proved a necessity. All this is natural enough. When we are dealing with the interests of

the remoter future, it is only within quite narrow limits that we can trust the forces which ordinarily prove efficient and safe regulators of economic action. The safe-guarding of those interests is a duty which from its very nature *rests upon the group,* rather than the individual. Unfortunately, the group too rarely rises above the standpoint of those individuals who are economically most powerful and greedy; so that the duty of the group in this respect is too frequently neglected. Still it cannot be doubted that our only hope lies in this direction. Government must put great and rigid limitations on private initiative if the social patrimony is to be saved at all.

As regards the second requisite of a system which properly regulates consumption—that it should not permit the satisfaction of immediate wants to absorb all our productive efforts to the neglect of capital-building—our present system can give an excellent account of itself,—a better account, probably, than could be given by any system depending on public initiative. Capital increases at an amazing pace. The increase is doubtless not a little due to a feature of the system which is, in many respects, undesirable, the extreme inequality of incomes; for this concentrating so much in the hands of a few makes the task of saving relatively easy. But there is another explanation. The present system powerfully stimulates accumulation in that it offers to those who save, great rewards, not so much in the shape of interest, as in the shape of those profits which may be obtained by the skillful use of a small initial sum. A further reason is found in the fact that the present system supplies highly convenient and efficient machinery for assisting the process of capital-building, in the shape of savings banks, insurance companies, bond exchanges, and the like.

The third requisite,—the best utilization of an already existing stock of consumption products,—is easily met by the present system, save under quite exceptional circumstances. It belongs to the very nature of the laws of exchange to estab-

lish a price which adjusts demand to stock: reducing demand, if stock is deficient, by raising price, increasing demand, if stock is excessive, by lowering price. But here, again, we are confronted with the "rich-man-poor-man" objection which was brought forward against the present regulation of production. "Demand," it is said, "is doubtless adjusted to stock by being cut down through higher price; but unfortunately this means that the demand of the poor is reduced while that of the rich remains at its old level." Now, there is doubtless some truth in this; the burden of curtailing consumption will often fall more on the poor than on the rich. Further, just as in production, circumstances may arise where the discrepancy between the real magnitude of wants and their effective magnitude as expressed in price is so great that it becomes the duty of society to interfere with the automatic regulation and determine by authority the destination of its resources. Thus, when a famine of food, fuel, or other fundamental necessary threatens, it usually becomes the duty of government to intervene, even perhaps to the extent of taking upon itself the task of distributing these commodities.

But, while extraordinary circumstances may arise which call for some other method of regulating consumption, the regulation by freely-determined price is on the whole fairly well adapted to most needs of human society. In the first place, it is easy to exaggerate the seriousness of the objection that in times of stock-deficiency, regulation through price throws the entire burden of curtailing consumption on the poor. Save with respect to a very few commodities, indeed, the number of families who do not reduce consumption at all when price rises is very small,—so small that its continuance of the old scale cannot materially alter the result; and here the government should, and usually does, step in and adjust the matter. In the second place the maintenance of a consumption policy which treats wants as having a social importance corresponding, not to their absolute magnitude, but rather to their apparent magnitude as expressed in the de-

mand schedules of individuals, is a necessary complement to the system of distribution which is permitted to obtain. If incomes can legitimately be unequal,—and we have argued that they really must be unequal,—the needs of persons having unequal incomes, needs which are, absolutely considered, equal, must, after all be treated as having unequal social importances. For any other policy would destroy the inequality of incomes which, by hypothesis is necessary.

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